

Data Sheet for Angle Sensors

Hall-Effect Single-Turn Rotary Encoder

Series MAB28



- Serial micro controller interface (SER)
- Serial peripheral interface (SPI)
- Electrical angle 360°
- Resolution: 12 bit or 14 bit
- Supply voltage: 5 V
- 28 mm housing diameter
- 2 precision ball bearings

The MAB28 is a very robust and versatile angle sensor. The ball bearings and the contactless measurement principle ensure best life time.

Electrical Data

Effective electrical angle of rotation 1.)	360°	
Independent linearity (best straight line) 1.)	±0,3 % @ 360°	
Absolute linearity 1.)	±0,5 % @ 360°	
Output signal	SER	SPI
Resolution	12 Bit	14 Bit
Update rate	96µs	200µs
Supply voltage	5 VDC ±10 %	
Current consumption (no load)	≤ 14 mA	≤ 12 mA
Insulation voltage 1.)	1000 VAC @ 50 Hz, 1 min	
Insulation resistance 1.)	2 MOhm @ 500 VDC, 1 min	

Mechanical and Environmental Data

Mechanical angle of rotation 1.)	Endless
Bearing	2 precision ball bearings
Max. operational speed	6000 rpm
Operating temperature range	-30..+80 °C (fixed cable, other temperature on request)
Storage temperature range	-40..+80 °C
Protection grade (IEC 60529)	IP65
Sealing shaft / bearing	Gap seal (IP40) Better IP-grades on request
Vibration (IEC 68-2-6, Test Fc)	±1,5 mm / 20 g / 10 bis 2000 Hz / 16 frequency cycles (3x4 h)
Shock (IEC 68-2-27, Test Ea)	50 g / 11 ms / half sine (3x6 Shocks)
Mass	approx. 90 g
Material shaft	Stainless steel
Material housing	Aluminium

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Immunity

EN 61000-4-2 ESD	Class B
EN 61000-4-3 RF sine wave	Class A
EN 61000-4-6 Conducted sine wave	Class A
EN 61000-4-8 Power frequency magnetic fields	Class A

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Order code

Description:	Options			
Series MAB28	MAB28			
Shaft diameter / shaft length: Ø 6 mm / 12mm		-		
Resolution / Supply voltage / Output signal: 12 Bit / 5V ± 10% / SER 14 Bit / 5V ± 10% / SPI			12HS 5 SER 14HS 5 SPI	
Cable length, axial or radial cable output: 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, recommended maximum cable length 0,6m

Order example MAB28

Requirement:

Shaft Ø 6,00 mm, Resolution / Supply Voltage/ Output Signal 12HS 5 SER, Standard cable length 1m, axial

Example for order code:

MAB28 12HS 5 SER

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

For example:

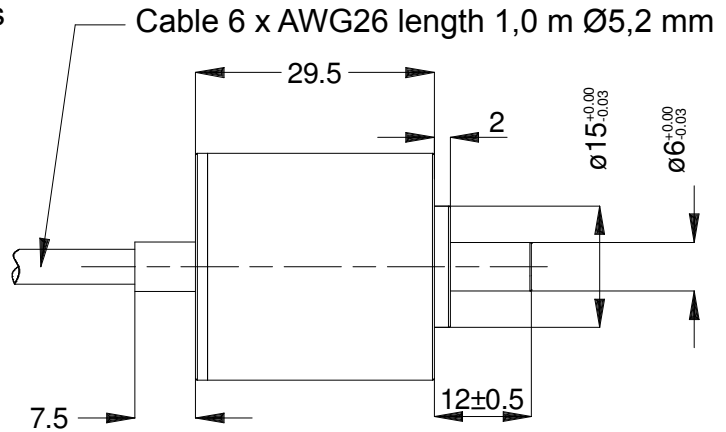
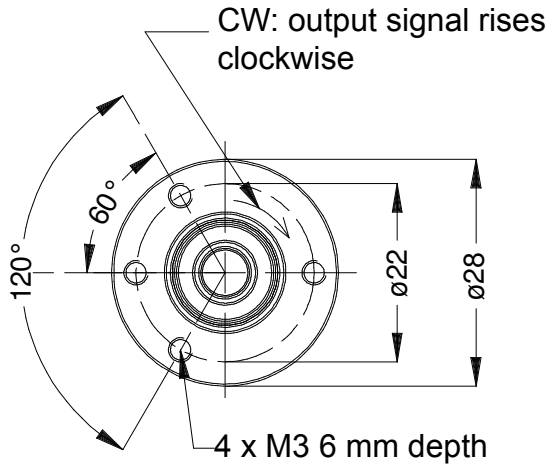
- Customized signal characteristics
- Mu-Metal shielding
- 3,3 V supply voltage
- Special shaft design
- Special cable and connection design

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Drawing



Cable- and Pin Assignment SER

Function:	Option: 12HS 5 SER
VSUP	red
Digital Out	brown
PROG(*)	orange(*)
Clock	yellow
Chipselect	green
GND	black

Standard shaft dimensions

Shaft length	12 mm
Shaft diameter	6 mm

(*) If you use SER Interface please do not connect PROG/orange

Cable- and Pin Assignment SPI

Function:	Option: 14HS 5 SPI
VSUP	red
GND	black
Data	brown
Clock	yellow
Chipselect	green

For details of the communication of the interfaces please refer to the data sheets of the IC manufacturers.

SER-Interface

Producer: ams
Type: AS5045
web: www.ams.com

SPI-Interface

Producer: Melexis
Type: MLX90316EDC
web: www.melexis.com