

Data Sheet for Angle Sensors

Hall-Effect singleturn Rotary Encoder with Analog Output

Series MAB28A



- 28 mm housing diameter
- 2 precision ball bearings
- Analog output (voltage, current)
- Protection class IP65
- Redundant outputs on demand
- Versatile programming possibilities ex works

Thanks to the double ball bearing shaft and the robust metal housing MAB28A is particularly suitable for use in harsh environments and for continuous operation. A redundant variant is optionally available for safety-relevant applications.

Elektrische Daten

Effective electrical angle of rotation 1.)	15° ≤ α ≤ 360° (programmierbar ab Werk), ±0,5°			
Resolution	0.022° für 15° ≤ α < 90° bzw. 12Bit für 90° ≤ α < 360°			
Independent linearity (best straight line) 1.)	±0.3 % @ 360°			
Absolute Linearity 1.)	±0.6 % @ 360°			
Update rate	200 μs High Speed (not for 2442 and redundant 2410 electronic) 600 μs Standard Speed (not for redundant 0505 electronic)			
Output signal	0...5 V ratiometrisch	0...10 V	0...5 V	4...20 mA
Supply voltage	5 V ±10 %	15...30 V	10...30 V	9.. 30 V
Current consumption (no load)	Single Electronic Standard Speed ≤ 8 mA Single Electronic ≤ 16 mA High Speed Redundant Electronic ≤ 16 Standard Speed Redundant Electronic High Speed ≤ 32 mA			≤ 14 mA Standard Speed
Output load	≥ 5 kOhm			≤ 500 Ohm
Insulation resistance 1.)	2 MOhm @ 500 VDC, 1 min			
Dielectric strength 1.)	1000 VAC @ 50 Hz, 1 min			

Mechanical and Environmental Data

Mechanical angle of rotation 1.)	Endless
Max. rotational speed	6000 rpm.
Bearing	Double ball bearing
Protection class electronics	IP65
Protection class shaft sealing	IP65
Operating temperature range	-30..+80 °C (fixed cable, advanced temperature range on request)
Storage temperature range	-40..+105 °C
Material housing	Aluminium
Material shaft	Stainless Steel
Mass	app. 90 g

Mounting parts

Scope of delivery	No mounting parts are included in delivery
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Emission / Immunity

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

1.) According IEC 60393

Order code

Description

Series	MAB28A						
Resolution / update rate 12 Bit / Standard Speed (*) (0505, 2405, 2410, 2442)		12 (*)					
12 Bit / High Speed (0505, 2405, 2410)		12HS					
Supply voltage / output signal 5 V ± 10 % / 0..5 V ratiometric (*) 24 V (10..30 V) / 0..5 V (*) 24 V (15..30 V) / 0..10 V 24 V (9..30 V) / 4..20 mA (only standard speed)			0505 (*) 2405 (*) 2410 2442				
Zero point alignment (*)				N (*)			
Rising signal clockwise 360° Rising signal counter clockwise (*)					- CCW360 (*)		
User defined electrical angle (*)					C(C)Wxxx (*)		
User defined shaft length [mm] (*)						Axx (*)	
Cable output Axial - 1 m Radial - 1m (*) Axial [xx m] (*) Radial [xx m] (*)							- CVR (*) CVxx (*) CVRxx (*)

Black/Bold = Standard

(*) = on request available for projects

Order example MAB28A

Requirement:

VSUP=24 V / OUT=0...10 V, update rate: high speed, sense of rotation CW360°, round cable 1,00 m with axial cable output

Example for order code:

MAB28A 12HS 2410

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Order code for MAB28A with electric redundant outputs (X = electric redundant)

Description

Series	MAB28A						
Option with redundant outputs		X					
Resolution / update rate							
12 Bit / Standard Speed (2410)			12				
12 Bit / High Speed (0505)			12HS				
Supply voltage / Output signal							
5 V ± 10 % / 0..5 V ratiometric (High Speed or Standard Speed)					0505		
24 V (15..30 V) / 0..10 V (only Standard Speed)					2410		
Electrical output signals, rising clockwise, 360°						CW360/ CW360	
Electrical output signals, rising counter clockwise (*)						CCW360/ CCW360 (*)	
User defined electrical angle (*)						C(C)Wxxx/ C(C)Wxxx (*)	
Zero point alignment (*)							N (*)
User defined shaft length [mm] (*)							Axx (*)
Cable output							
Axial - 1 m							-
Radial - 1m (*)							CVR (*)
Axial [xx m] (*)							CVxx (*)
Radial [xx m] (*)							CVRxx (*)

Black/Bold = Standard

(*) = on request available for projects

Order example MAB28AX (electric redundant version)

Requirement:

VSUP=24 V / OUT1=0...10 V, update rate: high speed, OUT2=0...10V, sense of rotation 1 CW360°, sense of rotation 2 CW360°, round cable 1,00 m with axial cable output

Example for order code:

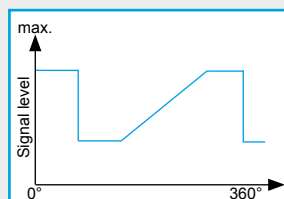
MAB28AX 12HS 2410 CW360/CW360

Additional options

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

For example:

- Special shaft design
- Special cable and connection design



Customized signal characteristic

For Example:

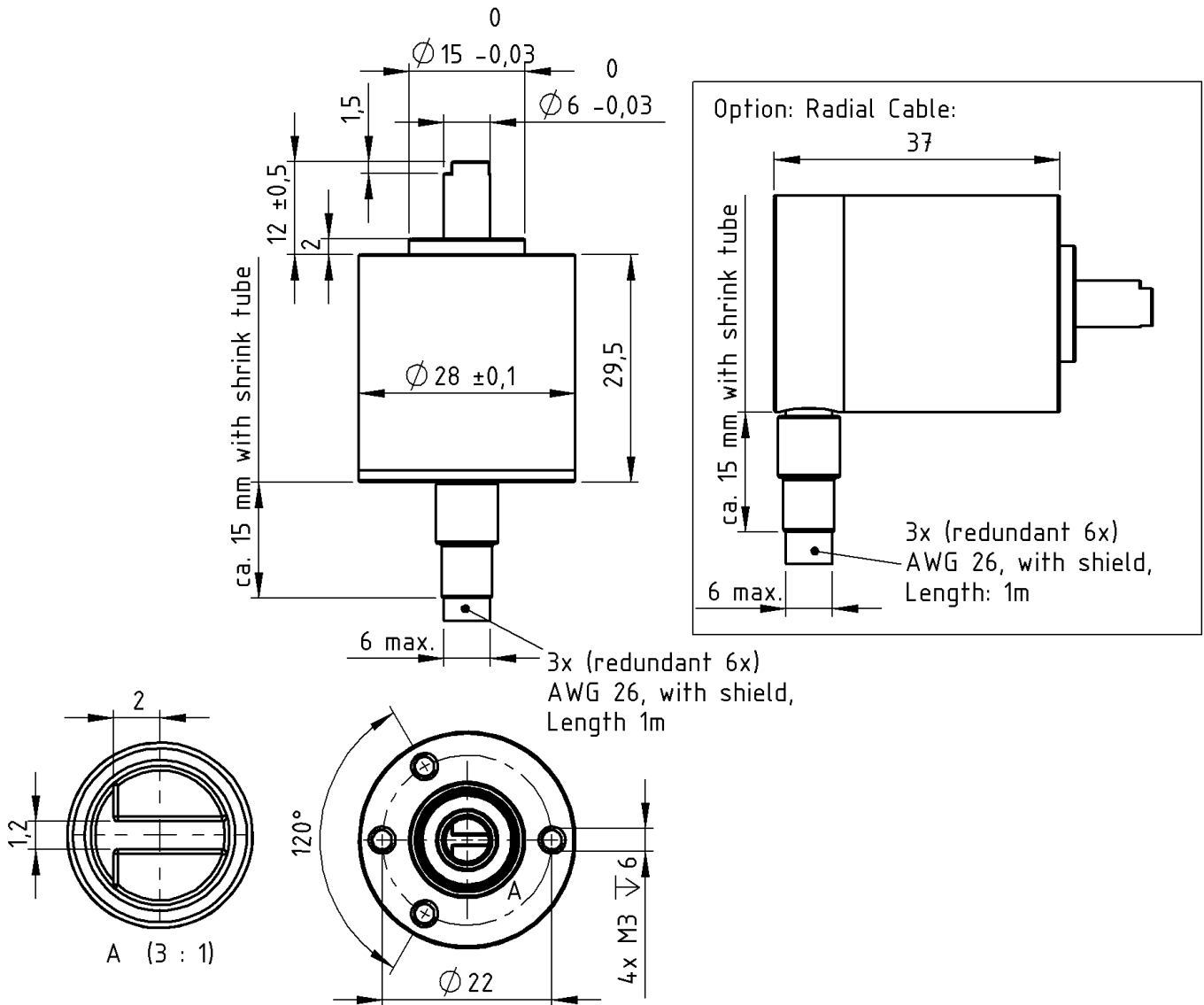
- minimum/maximum signal level
- signal plateaus

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Drawing



Standard: Zero point position is not defined

Option N: If shaft flattening is facing threaded hole at 9'o clock position then output signal is 0% FS.

Standard Cable Length	Cable Cross Section	Allowed Tolerance(*)
1000 mm	AWG26	-20 mm...+40 mm

(*) Tolerances according IPC Association

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Cable- and Pin-assignment MAB28A

Function:

OUT	brown
VSUP	red
GND	black

Cable- and Pin-assignment MAB28AX (redundant version)

Function:

OUT 1	brown
VSUP 1	red
GND 1	black
OUT 2	yellow
VSUP 2	orange
GND 2	green