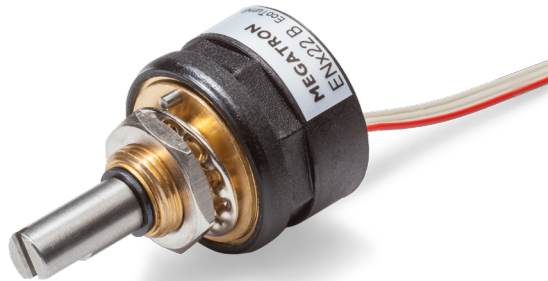


Data Sheet for Angle Sensors

Hall-Effect Single-Turn Rotary Encoder with Analog Output

Series ENA22B



- Long life alternative to potentiometers
- Analog output (voltage, current, redundant)
- Versatile factory programming
- With or without mechanical stops
- Increased torque (for panel encoder) or smooth running
- Potted electronics
- Life expectancy > 100 x 10⁶ shaft revolutions

The Series ENA22 B allows the simple replacement of potentiometers with bushing. The high reliable Halleffect-Technology provides a constant signal quality over the whole life cycle. For panel setting applications there are options like increased torque or a mechanical endstop available.

Electrical Data

Effective electrical angle of rotation 1.)	0..10° - 0..360°				
Independent linearity (best straight line) 1.)	±0,5 % @ 360°				
Output signal	0..5 V ratiometric	0..10 V	0..5 V	0..20 mA	4..20 mA
Resolution	12 bit (4096 steps) (electrical angle 90°..360°)				
Update rate	1 ms				
Supply voltage	5 V ±10 %	15..30 V	9.. 30 V		
Power consumption (no load)	< 10 mA				
Output load	≥ 5 kOhm			≤ 500 Ohm	
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, 320° +5°/-0°
Lifetime 2.)	
Standard	> 10 x 10 ⁶ revolutions
Option P	> 100 x 10 ⁶ revolutions The version with sealing ring is over 50.000 revolutions by manual operation protected against water.
Bearing	Sleeve bearing
Max. operational speed	
Standard	800 rpm
Option P	4000 rpm
Starting torque @ ambient temperatur 1.) 2.)	
Options LT and P LT	< 0,3 Ncm
Options HT, LT D and HT D	> 1 Ncm
End stop torque 1.) 2.)	> 80 Ncm
Operating temperature range	-40..+85 °C (fixed cable, other temperature on request)
Storage temperature range	
Standard	-40..+105 °C
Option P	-40..+90 °C
Protection grade (IEC 60529)	IP65
Sealing shaft/bearing	
Standard	No sealing (IP40)
Option D	O-sealing ring (IP55S)
Vibration (IEC 68-2-6, Test Fc)	±1,5 mm / 20 g / 10 bis 2000 Hz / 16 frequency cycles (3x4 h)
Mechanical shock (IEC 68-27, Test Ea)	50 g / 11 ms / halfsine (3x6 shocks)

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Max. radial load	1 N
Mass	Approx. 24 g
Fastening parts included in delivery	Hex nut and tooth washer
Fastening torque mounting nut	≤ 1 Nm
Material shaft	Stainless steel
Material housing	Plastic

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

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

Order code

Description	Options					
Series ENA22 bushing mount with single electronic	ENA22					
Shaft diameter / bushing thread Ø 6 mm / M10		B1				
Supply voltage / Output signal 5 V ± 10 % / 0..5 V ratiometric 24 V (9..30 V) / 0..5 V (*) 24 V (15..30 V) / 0..10 V 24 V (9..30 V) / 4..20 mA 24 V (9..30 V) / 0..20 mA (*)			0505 DC05 (*) 2410 2442 2420 (*)			
Without mechanical stops; clockwise; 360°; zero point alignment				OCW360 N		
Signal raising in counterclockwise (*)				OCCW360(*)		
Free choice of the electrical angle (*)				OC(C)Wxxx (*)		
Polymer bearing + low torque Low torque + sealing ring in the bushing					P LT LT D	
With mechanical stops; clockwise; 320° mechanical and electrical angle				SCW320		
Signal raising in counterclockwise (*)				SCCW320(*)		
Mechanical stops at 90°; 180°; or 270° (*)				SC(C)W90 (*) SC(C)W180 (*) SC(C)W270(*)		
High torque + sealing ring in the bushing					HT D	
Other shaft length [mm] (*)						Axx (*)
Other cable length [m] (*)						CVxx (*)

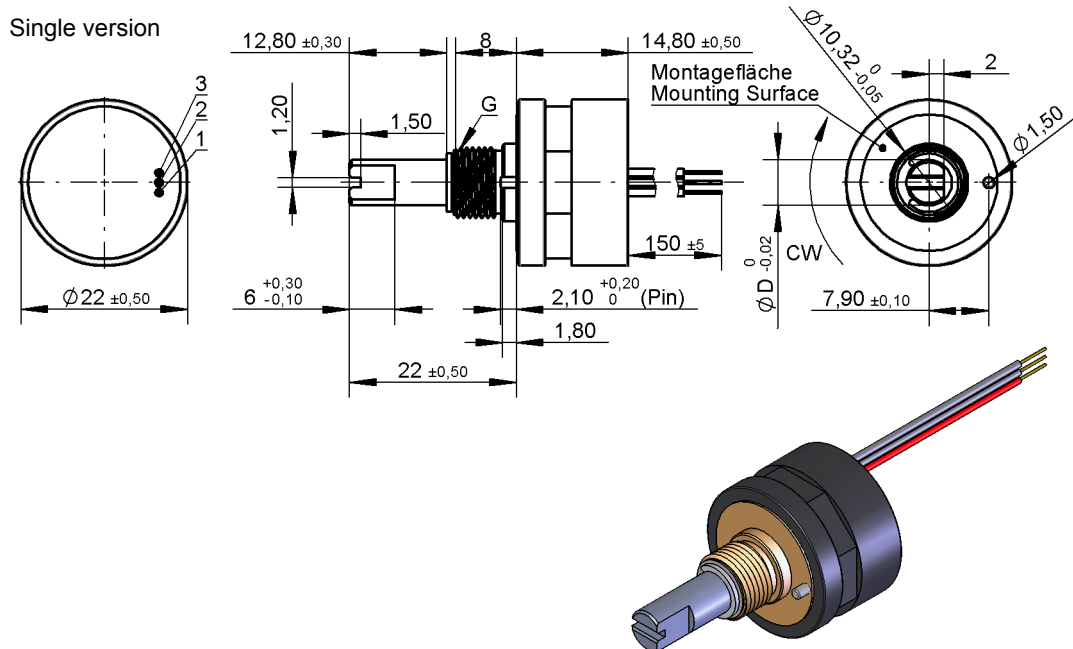
(*) = on request available for projects

Data Sheet for Angle Sensors

Hall-Effect Single-Turn Rotary Encoder with Analog Output

Series ENA22B

Drawing



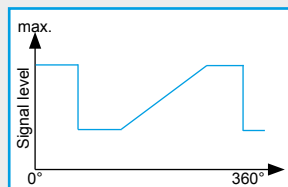
Cable assignment	
VSUP 1	1
OUT 1	2
GND 1	3

Option	Dimension D	Dimension G
B1	6 mm	M10

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

For example:

- Customized signal characteristic
- Mu-Metal shielding
- Other mechanical angle
- Other starting torque



Customized output signal

For example:

- Other minimum and maximum signal level
- Multi point programming

For technical advice, projects, samples, questions about pricing, delivery times and availability please contact us

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