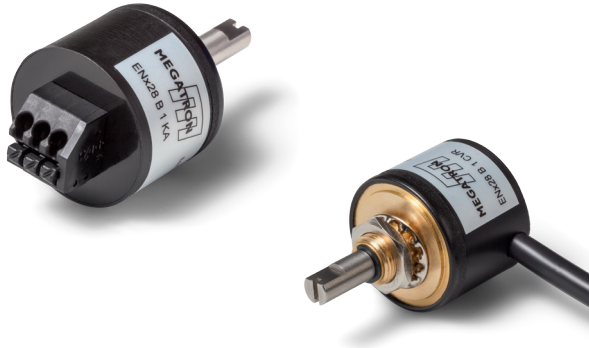


Data Sheet for Angle Sensors

Hall-Effect Single-Turn Rotary Encoder with Analog Output

Series ENA28 B



- 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 variety of options of the series ENA28 B opens up a wide range of applications as manual control or angle sensor. With strain-relieved round cable it is suitable for rugged use in industrial environments. The terminal block type on the other hand offers a maximum of flexibility.

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 1.)	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	-30..+80 °C
Storage temperature range	-40..+80 °C
Protection grade (IEC 60529)	
Version with cable	IP65
Version with clamping terminal	IP30
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. 30 g with terminal block, approx. 66 g with 1 m cable
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 ENA28 bushing mount with single electronic	ENA28					
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 (*)
Radial cable - 1 m cable length Terminal Block						CVR KA

short-term stock types can be found on: <http://www.megatron.de/en/stocklists/angle-sensors/lagerliste.html>

bold print = standard option

(*) = on request available for projects

Data Sheet for Angle Sensors

Hall-Effect Single-Turn Rotary Encoder with Analog Output

Series ENA28 B

Order code redundant outputs

Description	Options						
Series ENA28 bushing mount with redundant electronic	ENA28						
Shaft diameter / bushing thread Ø 6 mm / M10		B1					
Redundant outputs			X				
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				0505 (*) DC05 (*) 2410			
Without mechanical stops; clockwise; 360°; zero point alignment					OCW360/CW360 N		
Signal raising in counterclockwise (*)					OCCW360/CCW360(*)		
Free choice of the electrical angle (*)					OC(C)Wxxx/C(C)Wxxx (*)		
Polymer bearing + low torque Low torque + sealing ring in the bushing (brass sleeve bearing)						P LT LT D	
With mechanical stops; clockwise; 320° mechanical and electrical angle					SCW320/CW320		
Signal raising in counterclockwise (*)					SCCW320/CCW320 (*)		
Mechanical stops at 90°; 180°; or 270° (*)					SC(C)W90/C(C)W90 (*) SC(C)W180/C(C)W180 (*) SC(C)W270/C(C)W270 (*)		
High torque + sealing ring in the bushing						HT D	
Other shaft length [mm] (*)							Axx (*)
Radial cable - 1 m cable length							CVR

short-term stock types can be found on: <http://www.megatron.de/en/stocklists/angle-sensors/lagerliste.html>

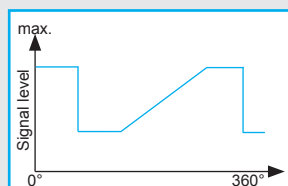
bold print = standard option

(*) = on request available for projects

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

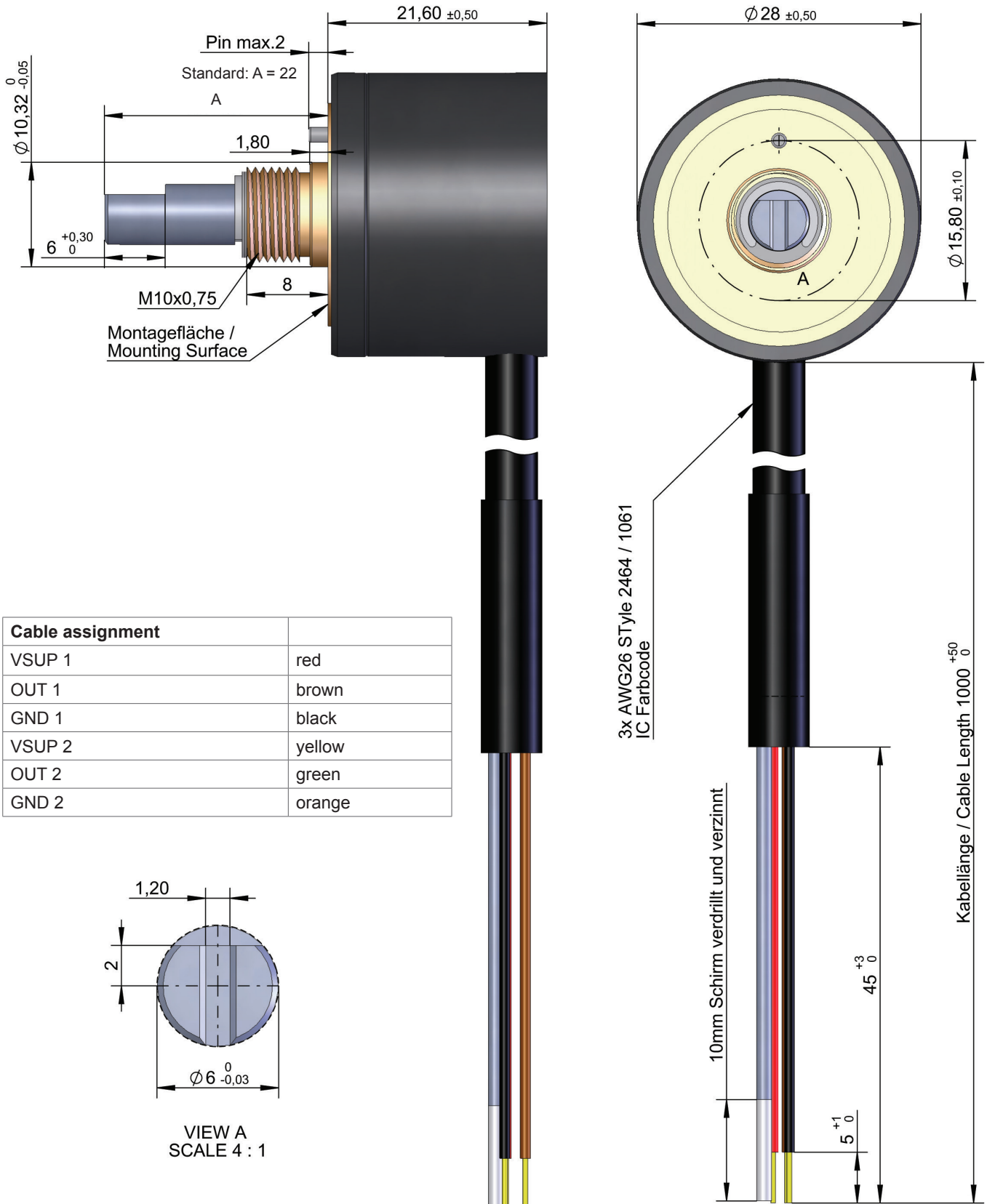
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export@megatron.de

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Hall-Effect Single-Turn Rotary Encoder with Analog Output

Series ENA28 B

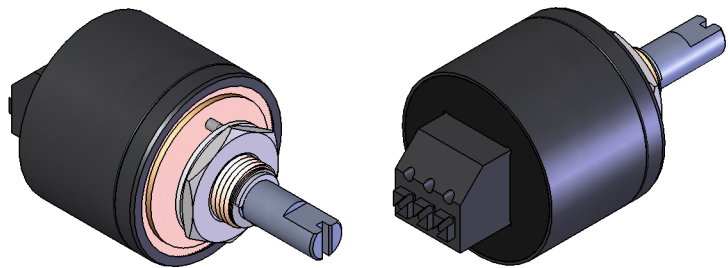
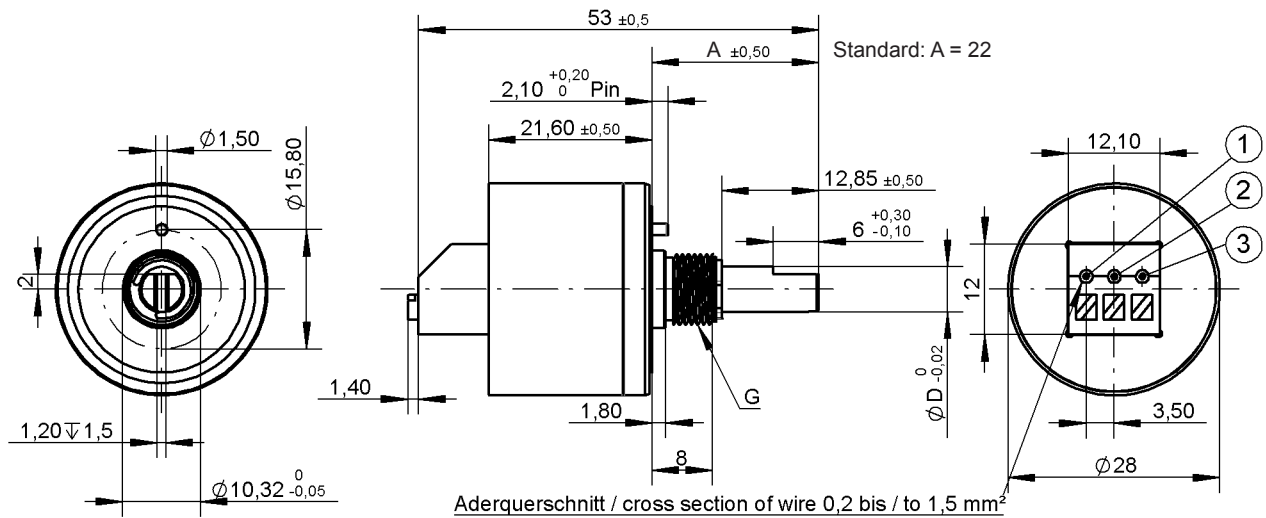
Drawing



Data Sheet for Angle Sensors

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Pinbelegung	
GND	1
OUT	2
VSUP	3

12.06.2013