

Data Sheet for Angle Sensors

Hall-Effect Multiturn Encoder

Series ENA22PM



- Durable alternative to Multi-Turn-Potentiometers
- Ø 22 mm housing with bushing
- Start and end points easily set in field via dry contacts
10° to 200 x 360°
- 12 bit resolution
- Analog output: 0-5 V, 0-10 V
- Supply voltage 16-30 V
- > 100 x 10⁶ revolutions life

The Series ENA22PM 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 nonvolatile memory. During power off it is possible to turn the shaft ±179° without loss of the position value.

Electrical Data

Effective electrical angle of rotation 1.)	
Minimum programmable	0..10°
Maximum programmable	0..72000° (200 turns)
	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 ±179° during power off.</small>
Independent linearity (best straight line) 1.)	± 0,5 % @ 360° / ± 0,05 % @ 3600° / ± 0,005 % @ 36000°
Output signal	0..5 V 0..10 V
Theoretical Resolution	
Programmed angle ≥ 360°	12 bit (4096 steps)
Programmed angle < 360°	4096 steps x programmed angle / 360°
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 MΩ @ 500 VDC, 1 min
Max. number of programming cycles	10.000

Mechanical and Environmental Data

Mechanical angle of rotation 1.)	Endless
Lifetime 2.)	
Standard	> 10 x 10 ⁶ revolutions
Option P	> 100 x 10 ⁶ revolutions
	<small>Tested under room temperature +20 °C, with radial load 1N, without sealing ring</small>
Bearing	Sleeve bearing
Max. operational speed	120 rpm
Starting torque @ ambient temperatur 1.) 2.)	
Option LT and P LT	< 0,3 Ncm
Option D (sealing ring)	> 1 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)

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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)
Max. radial load	1 N
Mass	approx. 22 g
Fastening parts included in delivery	Hex nut wrench size 14, 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 ENA22PM	ENA22PM				
Shaft / Bushing thread Ø 6 mm / M10	B1				
Supply voltage / output signal 24 V (16..30 V) / 0..5 V (*) 24 V (16..30 V) / 0..10 V			2405 (*) 2410		
Bearing Metal sleeve bearing with sealing ring Polymer sleeve bearing low torque				LT D P LT	
Other shaft length [mm] (*)					Axx (*)
Other cable length [m] (*)					CVxx (*)

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

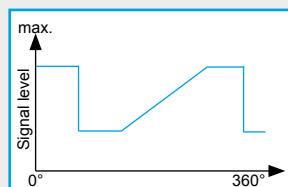
bold print = standard option

(*) = on request available for projects

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

For example:

- 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)

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

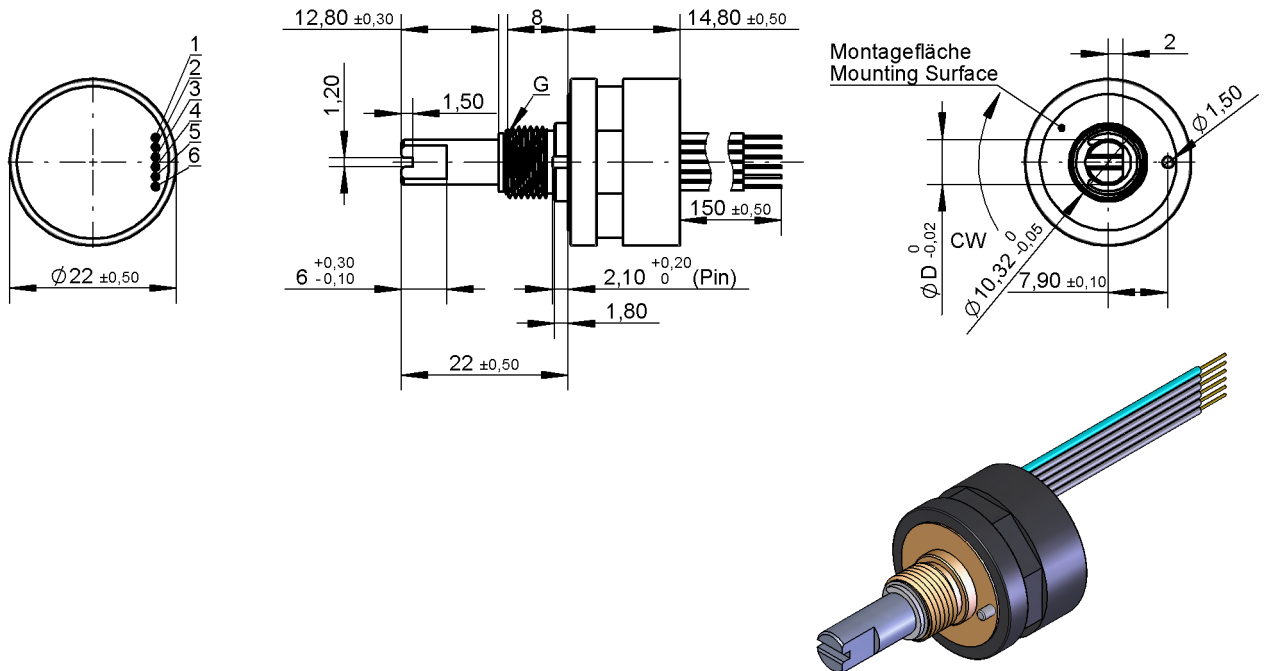
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Drawing



Cable Assignment	
Ground	1
Output signal	2
Supply voltage	3
StartPos	4
EndPos	5
DIR	6

Option	D	G
B1	6 mm	M10

Please also note the supplement „Manual programmable Multi Turn with Short Description“

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