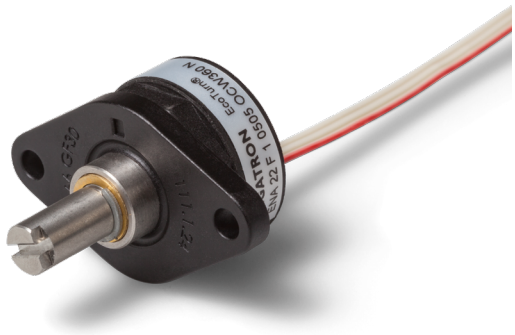
Data Sheet for Angle Sensors

Hall-Effect Single-Turn Rotary Encoder with Serial Output — Series ENS22 F



- SPI- or SSI- Interface
- Resolution up to 14 bit (16384 positions)
- Life expectancy > 25 x 10^6 shaft revolutions
- Potted electronics

The Series ENS22 F closes the gap between potentiometric sensors and high end sensors with ball bearings. Due to the easy connection of the flat ribbon cable, e.g. using IDC, the cost of soldering can be reduced as well. For safety critical applications there is a redundant version available.

Electrical Data		
Effective electrical angle of rotation 1.)	0..360°	
Independent linearity (best straight line) 1.)	± 0,5 %	
Output signal	SPI	SSI
Theoretical Resolution	14 bit	12 bit
Updaterate	0,2 ms	0,1 ms
Supply voltage	5 VDC ± 10 %	9-30 VDC
Power consumption (no load)	≤ 30 mA	
Insulation voltage 1.)	1000 VAC @ 50 Hz, 1 min	
Insulation resistance 1.)	2 MOhm @ 500 VDC, 1 min	

Mechanical Date, Environmental Conditions, Miscellaneous	
Mechanical angle of rotation 1.)	Without stops
Lifetime 2.)	> 25 x 10^6 rotations Depending on the application - values determined at room temperature +20 ° C, with a radial load of 1 N
Bearing	Sleeve bearing
Max. operational speed	4000 rpm
Starting torque @ ambient temperature 1.) 2.)	< 0,6 Ncm
Operating temperature range	-40..+85 °C (fixed cable, extended temperature range on request)
Storage temperature range	-40..+105 °C
Protection grade (IEC 60529)	IP65
Sealing shaft / bearing	no sealing (IP40)
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. 19 g
Material shaft	stainless steel
Material housing	plastic

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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 ENS22	**ENS22**					
Shaft diameter **Ø 6 mm / M10** Ø 6,35 mm (1/4") (*)		**F1** F2 (*)				
Resolution / supply voltage / interface **14 bit / 5 V ± 10% / SPI** 12 bit / 5 V ± 10% / SSI (*) 12 bit / 24 V (9-30 V) / SSI (*)			**1405SPI** 1205SSI (*) 1224SSI (*)			
Without stops; clockwise rising signal; 360°; zero point alignment				**OCW360 N**		
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:
- Mu-Metal shielding
- Other mechanical angle
- Other starting torque
- Special housings
- Special shaft design

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

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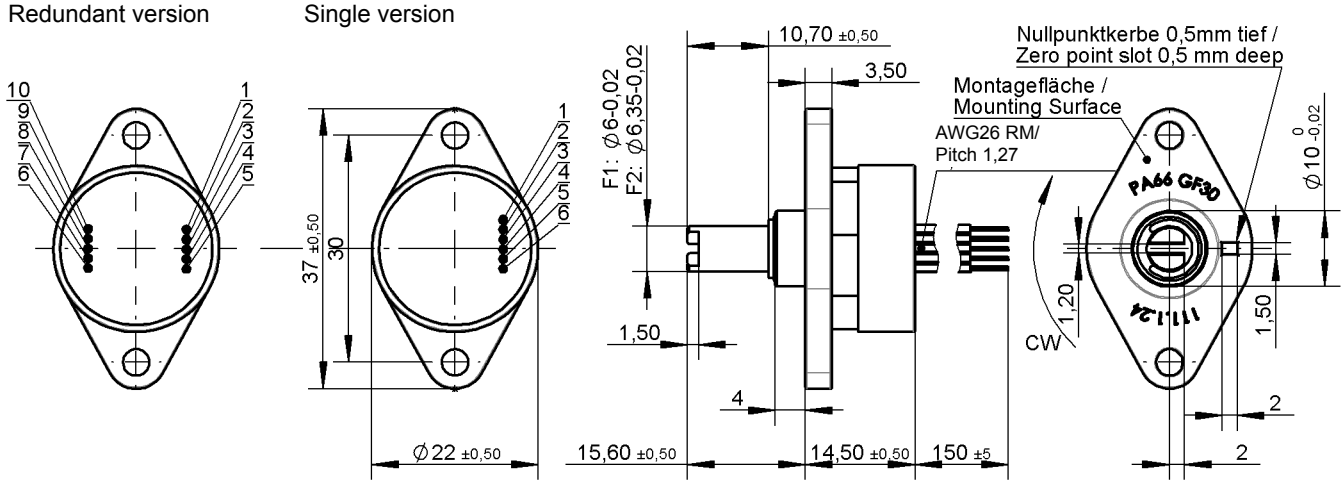
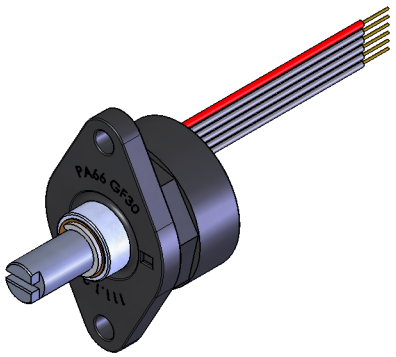
Drawing





Cable assignment	
VSUP 1	1
GND 1	2
DAT 1	3
CLK 1	4
CS 1	5
VSUP 2	6
GND 2	7
DAT 2	8
CLK 2	9
CS 2	10

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