

# Data Sheet for Angle Sensors

Parametrisable Rotary Encoder (magnetic / single-turn / analogue output)

Series ETA25PS



- Shaft encoder for variable applications
- Parametrisable via DIP switches
- Angle 0..20° to 0..360° free configurable
- Sense of rotation selectable (CW / CCW)
- Supply voltage: 5 V / 3.3 V (switchable), 24 V
- Analogue output: 0..5 V / 0..3.3 V (ratiom.), 0..10 V
- High life expectancy >100 mio. shaft revolutions
- Small housing case (ø25 mm)
- Power save mode < 1 mA on request

Only one sensor for different applications. User friendly to program. This saves money and time and simplifies the logistics. In combination with the long life expectancy ETA25PS offers an outstanding price performance relationship.

Electrical Data			
Effective electrical angle of rotation 1.)	0..20° to 0..360°		
Independent linearity (best straight line) 1.)	±0.3 % @ 360°		
Absolute Linearity 1.)	±0.6 % @ 360°		
Output signal	0...3.3 V ratiometric	0..5 V ratiometric	0...10 V
Resolution	0.08°		
Update rate	150 µs		
Supply voltage	3.3 V ±10 %	5V ±10 %	15...30 V
Supply current in operation (no load)	≤ 8 mA	≤ 8 mA	≤ 10 mA
Supply current during programming	max. 100 mA		
Output load	≥ 5 kOhm		
Insulation resistance 1.)	100 MOhm @ 1000 VDC, 1 min		
Insulation voltage 1.)	1000 VAC @ 50 Hz, 1 min		
Maximum amount of configuration cycles	With DIP-Switch: 1x (OTP)		

Mechanical and Environmental Data	
Mechanical angle 1.)	Endless
Lifetime 2.)	> 100 mio. revolutions (in dependence of application) <small>Tested under room temperature +20 °C, with radial load 1N, without sealing ring</small>
Bearing	Sleeve bearing
Max. operational speed	100 rpm (800 rpm within short time)
Operational torque without / with X-Ring	0.1 ≤ M ≤ 0.6 Ncm / 0.3 ≤ M ≤ 1.3 Ncm (@ RT, 10 rev./min)
Operating temperature range	-40°...85 °C (cabling fixed installed)
Storage temperature range	-40°...+105 °C
Protection grade front side (IEC 60529) Standard	IP40
Protection grade rear side (IEC 60529)	IP40 (solder pads excluded)

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## Mechanical and Environmental Data

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)
Max. radial load	1 N
Mass (product with option ST1)	Approx. 26 g
Fastening parts included in delivery	Hex nut (AF14) and tooth washer, if option D is ordered then an additional O-Ring is part of delivery as sealing between mounting panel and rotary encoder.
Fastening torque mounting nut	≤ 3 Nm
Material shaft	Stainless steel
Material housing	Plastic / Bronze

## Immunity

EN 61000-4-2 ESD	Class B
EN 61000-4-3 RF sine wave	Class A
EN 61000-4-6 Conducted sine wave	Class A
EN 61000-4-8 Power frequency magnetic fields	Class A

1.) According IEC 60393

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

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## Order Code

### Description

User parametrisable angle sensor:  
 - Electrical rotation angle until 360°  
 - Sense of rotation CW or CCW  
 - OTP (1x) programmable via DIP switches

Selection: standard=black/bold, possible options=grey/cursive

### Series ETA25PS

ETA25PS

### Shaft diameter, shaft length:

**Shaft diameter Ø 6 mm, shaft length 22 mm**

*Option: Shaft diameter Ø 6.35 mm, shaft length 22 mm*

*Option: User defined shaft dimensions [mm] Ø ≤6.35mm*

**6x22**  
*6,35x22*  
*XxXX*

### Supply voltage / Output signal:

**VSUP=5 V (4.5...5.5 V) / OUT=0...5 V (ratiometric)**

**or VSUP=3.3 V (3.0 V...3.6 V) / OUT=0...3.3 V (ratiometric)**

*(VSUP 5 V or 3.3 V can be selected by DIP switch integrated in sensor housing)*

**VSUP=24 V (15...30 V) / OUT=0...10 V**

**0505**

**2410**

### Shaft sealing (standard without shaft sealing):

*Option: D with shaft sealing*

*D*

### Electrical connection, cable length, anti rotation pin (according drawing):

**Solder pads** (anti rotation pin compatible to former series MAB25A, anti rotation pin A)

**LA**

### Electrical connection:

*Option: solder pads*

*Option: clamping terminals*

### Anti rotation pin:

*Option: anti rotation pin A (anti rotation pin compatible to former series MAB25A)*

*Option: anti rotation pin B (anti rotation pin compatible to former series ENA22A)*

*L*  
*K*

*A*  
*B*

## Order example ETA25PS

### Requirement:

Shaft Ø 6.00 mm, shaft length 22 mm, VSUP=5V/OUT=0...5V, no shaft sealing, solder pads, anti rotation pin A

### Example for order code:

ETA25PS 6x22 0505 LA

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



For example:

- Modified shaft shape
- Clamping terminal, special cable design
- Output signal 0,5...4,5 V
- Output signal 5 V PWM (10-90 % Duty-Cycle)
- Ultra Low Power (ULP) / Ultra Low Speed (ULS) version

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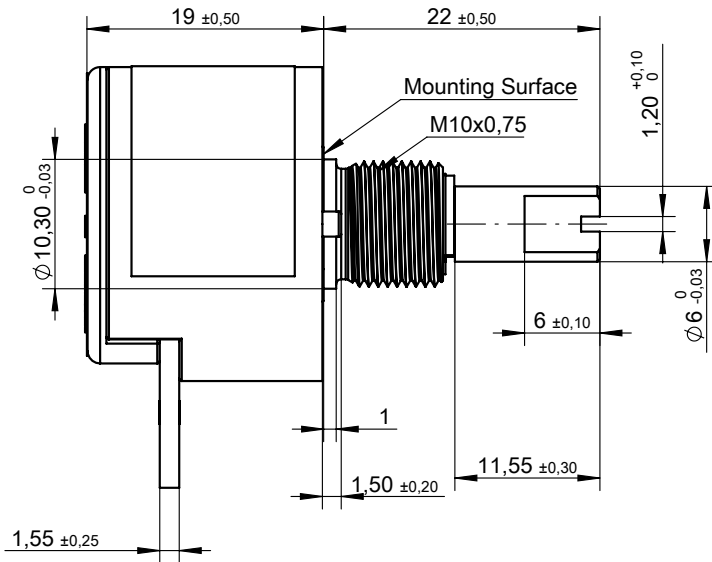


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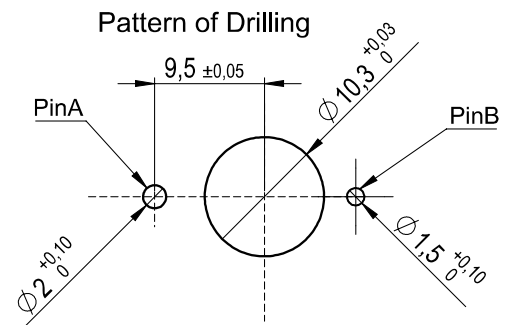
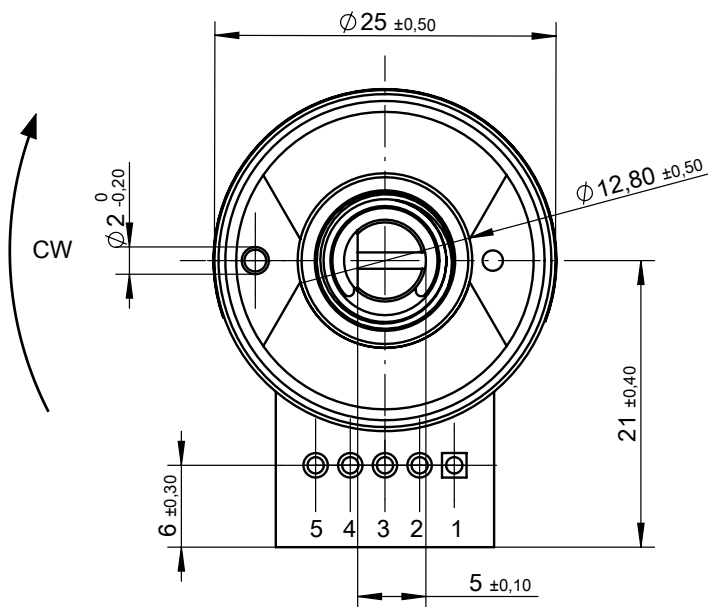
## Drawing

### Standard L



#### Standard shaft dimensions

Shaft length A	22 mm
Shaft diameter D	6 mm



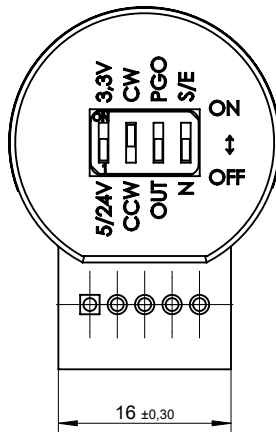
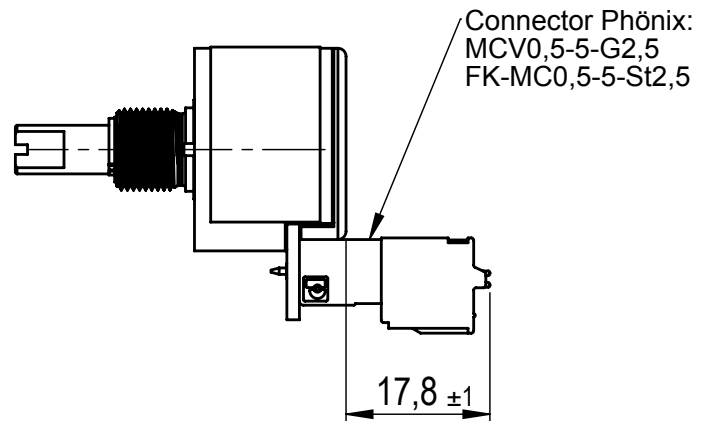
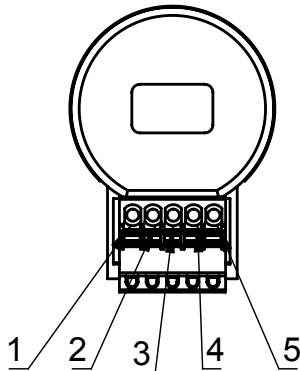
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## Drawing

Option K



### Cable and pin assignment

Function	Option L, K and ST1
VSUP	PIN 1
OUT	PIN 2
GND	PIN 3
n.c.	PIN 4
n.c.	PIN 5