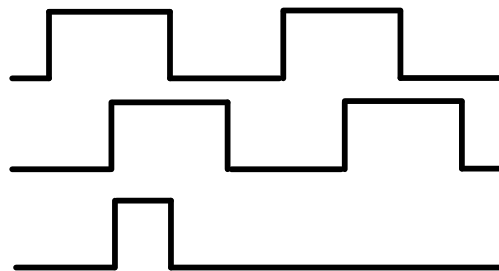


Mini Encoder High Resolution



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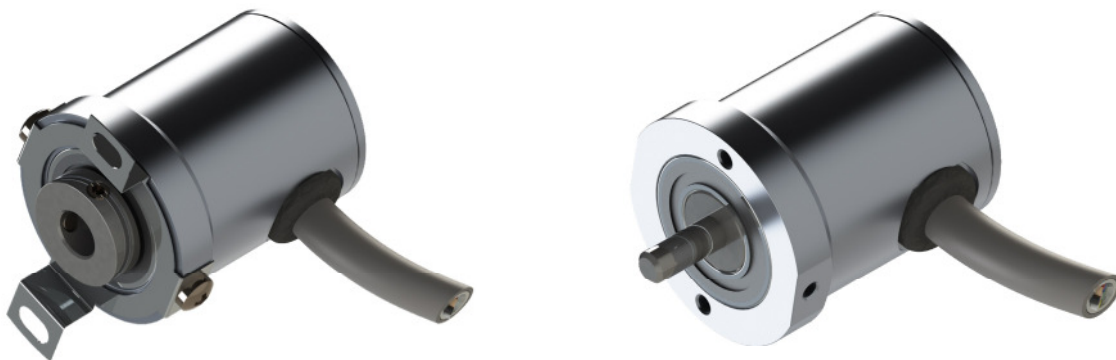
Description

The MEHR25 is a high resolution optical encoder. He is available as a shaft or hollow shaft encoder for different sizes of motor shafts.

The encoder provides two differential square wave output signals (in quadrature 90 degrees phase shifted) for counting and direction information and one index channel (one pulse per revolution).

The resolution of the encoder is determined by the number of counts per revolution (CPR). Power supply and signals are provided by a 4x2x0,14mm² shielded cable with tinned ends.

Performance



Features

- Small size: 28.0 mm diameter x 31.8 mm length
- Quick and easy assembly
- Three channel differential line driver output channel A+, A-, B+, B-, I+, I-
- Power supply: 5 VDC
- Output type: TTL compatible
- Max. 50 mA output drive capability
- Resolution up to 12,000 CPR
- Maximum shaft diameter: 6.0 mm
- Operating temperature: -20°C to +85°C
- Frequency: 500 kHz
- Compliant EU-directive 2011/65/EU (RoHS)
- Protection class IP65

Recommended operating conditions

Electrical Notes

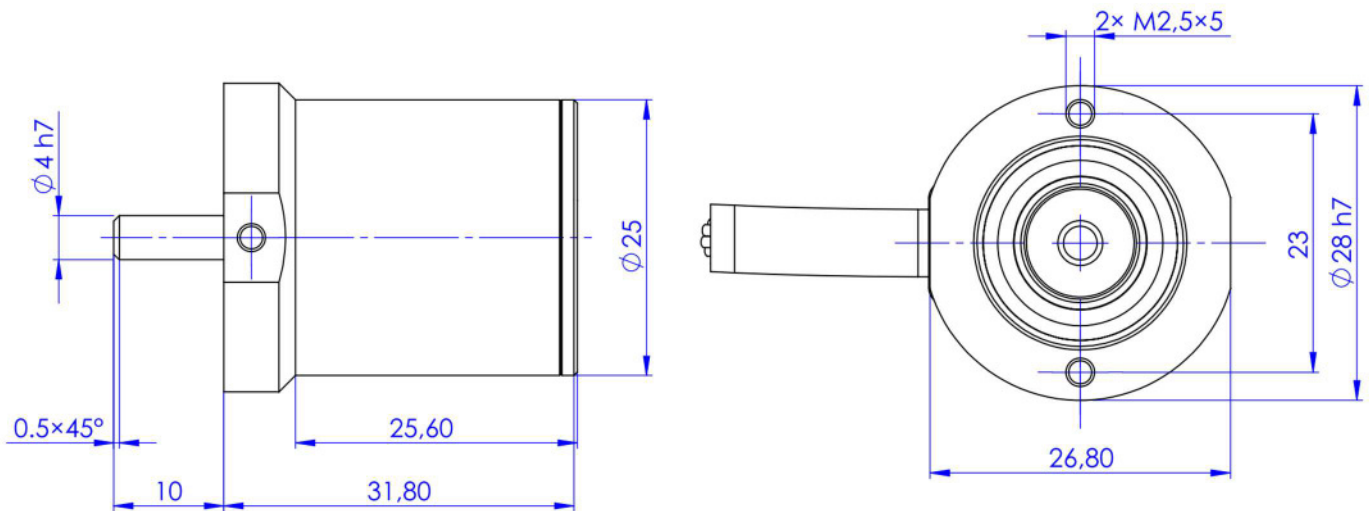
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply voltage	V_{CC}	4,75	5.0	5,25	V_{DC}	
Supply current	I_{CC}	8	30	50	mA	No Load
Load capacitance	C_L			100	pF	
Count frequency	f			850	kHz	
Operating temperature	T_A	-20	25	85	°C	
Humidity exposure				90	% RH	not condensing
A, A, B, B, I, I Channel						
High level output voltage	V_{OH}	2.5		V_{CC}	V_{DC}	
High level output current	I_{OH}			50	mA	
Low level output voltage	V_{OL}			0.8	V_{DC}	
Low level output current	I_{OL}			50	mA	
Propagation time				110	ns	
Rise time	t_r			350	ns	
Fall time	t_f			350	ns	

Mechanical Notes

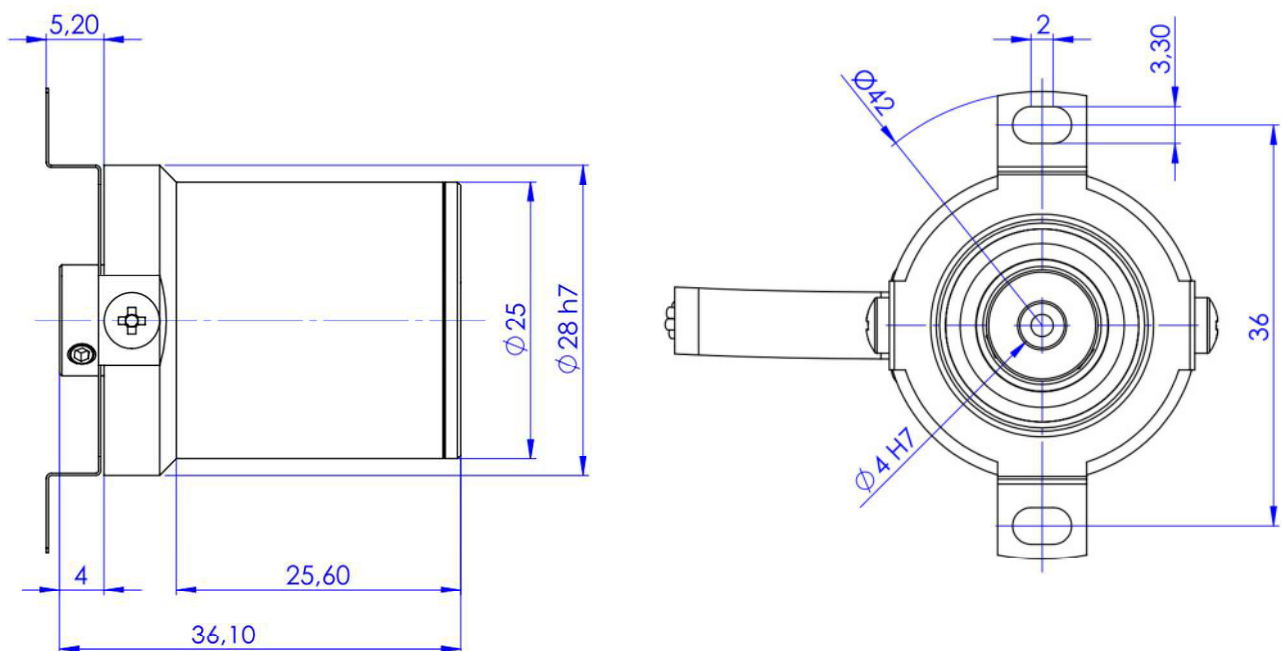
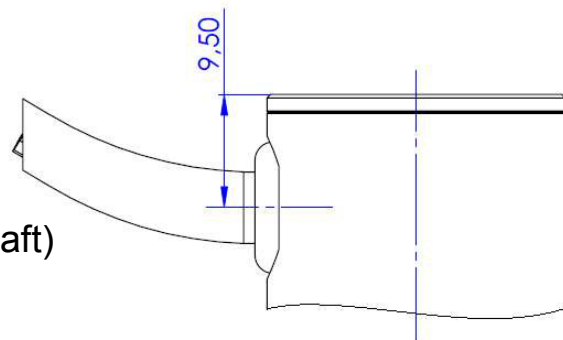
Parameter	Value	Tolerance	Unit
Max. allowable axial shaft play of motor	0.1	-	mm
Max. allowable radial shaft play of motor	0.02	-	mm
Mounting screw size (DIN 84)	M3	-	-
Pitch circle diameter	36.0	±0.1	mm
Shielded cable, twisted pair, tinned ends	4 x 2 x 0,14 mm	-	mm
Total weight	60	-	g
Moment of inertia of the hub with the code wheel	13.0	±1.0	gcm ²
Protection grade according to DIN 40500	IP65	-	-
max. speed (mechanical)	10,000	-	rpm

ESD Warning: Normal handling precautions should be taken to avoid static discharge damage to the sensor.

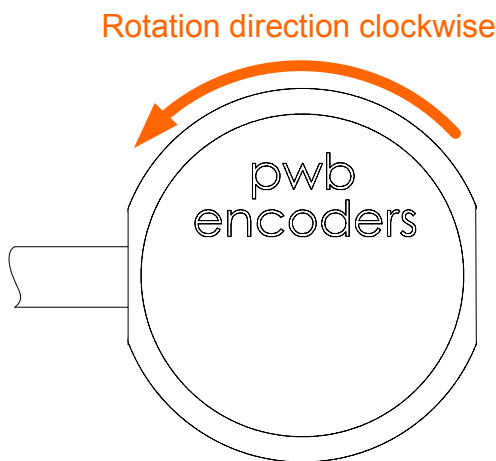
Mechanic performance: K (shaft)



Mechanic performance: C (hollow shaft)



Electrical interface



Pin-out description

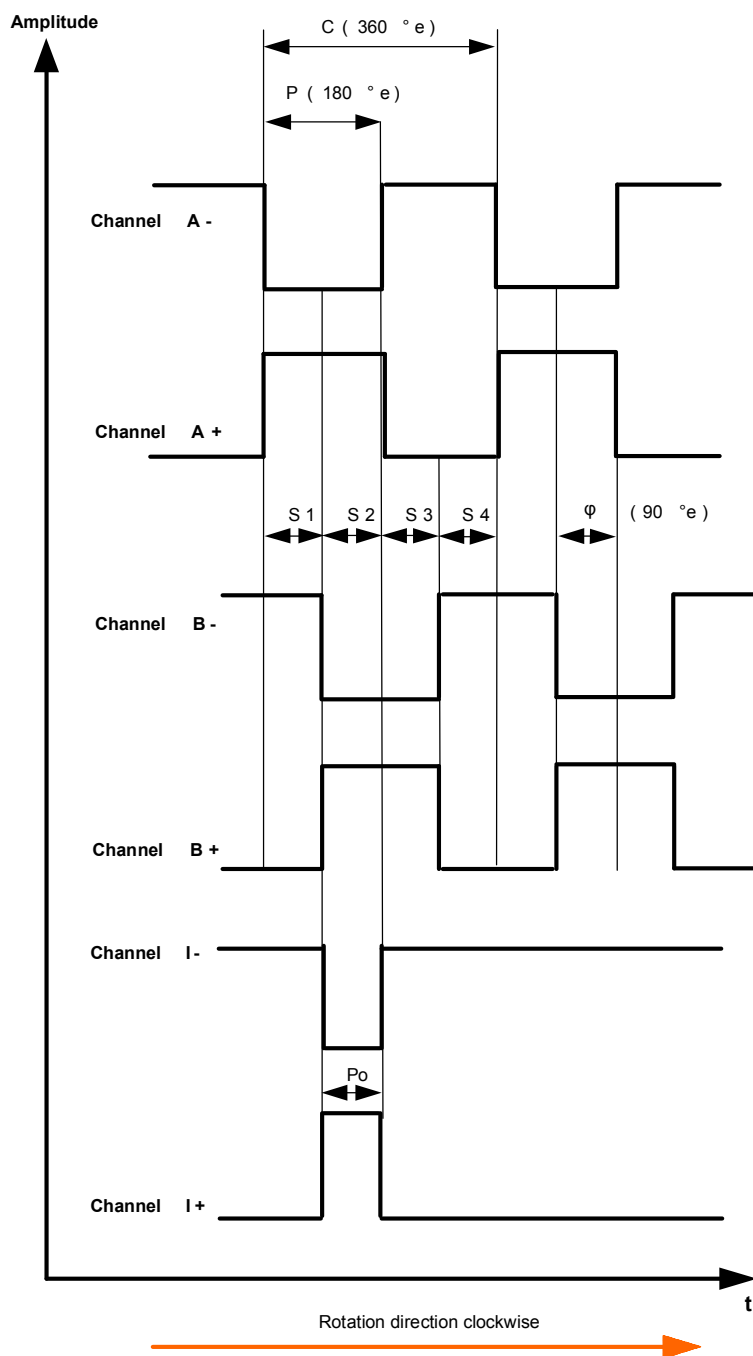
Signal Description	Wire colors (cable)
Power supply	red
Ground	blue
Channel A+	white
Channel A-	brown
Channel B+	green
Channel B -	yellow
Index I +	gray
Index I -	pink

IMPORTANT NOTICE

The guarantee will be voided by misuse, accident, modification, unsuitable physical or operating environment, operation in other than the specified operating environment, or failure caused by a product for which **PWB encoders GmbH** is not responsible.

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Electrical interface



Definitions

Counts per Revolution (CPR):
The number of bar and window pairs or increments per revolution of the code wheel.

One Cycle (C):
360 electrical degrees ($^{\circ}e$), one period of the signal, caused by one pair of bar and window.

Pulse Width (P):
The number of electrical degrees that an output is high during one cycle. This value is nominally $180^{\circ}e$.

State Width (S):
The number of electrical degrees between a transition in the output of channel A and the neighbouring transition in the output of channel B. There are 4 states per cycle, each nominally $90^{\circ}e$.

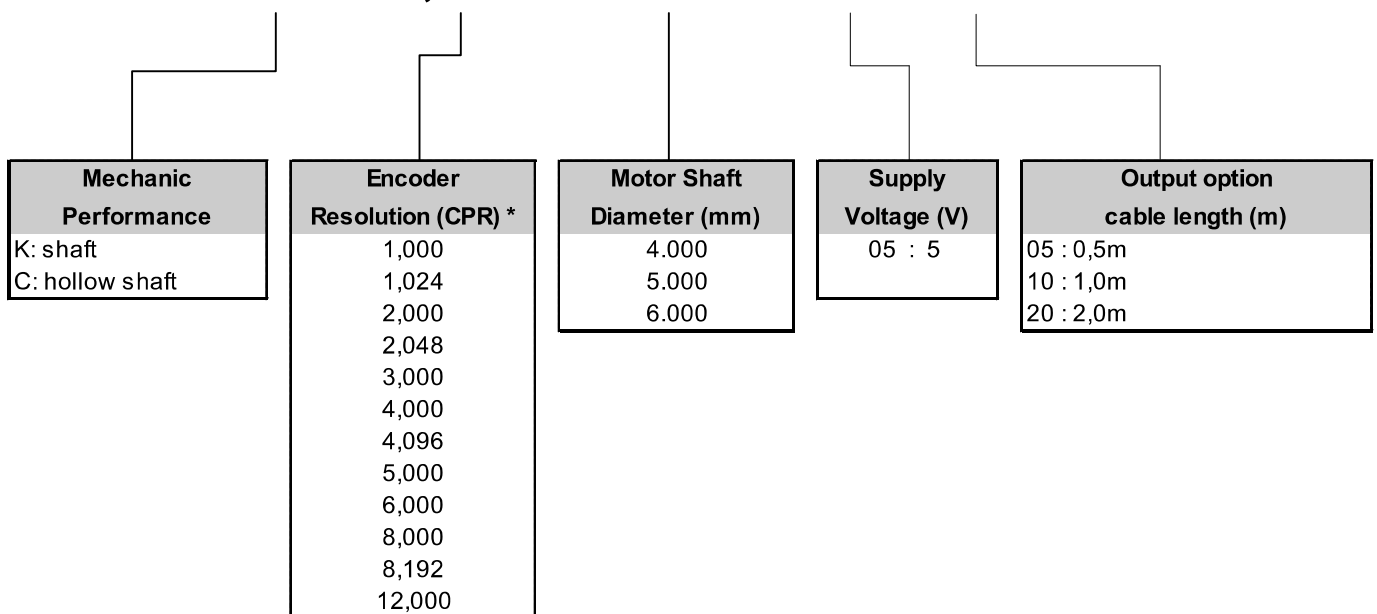
Phase (ϕ):
The number of electrical degrees between the centre of the high state of channel A and the center of the high state of channel B. This value is nominally $90^{\circ}e$.

Position Error (ΔQ):
The angular difference between the actual angular shaft position and the position indicated by the encoder cycle count.

Ordering information

Ordering code:

MEHR 25 X - XX,XXX - X.XXX - XX - XX



Note:

* other encoder resolutions on request

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