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## Operating conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating temperature	$T_A$	-40		85	°C	
Supply voltage	$V_{CC}$	8		30	$V_{DC}$	
Supply current	$I_{CC}$			110	mA	No load
Output voltage	$V_{out}$			$V_{CC}$	V	
Output current	$I_{out}$			30	mA	per Channel
Count frequency	$f$			100	kHz	up to 1024 CPR
				500		2000 - 2500 CPR
				1000		4000 - 5000 CPR

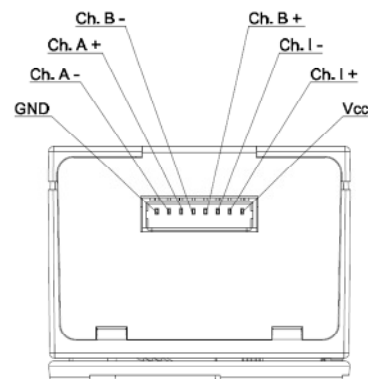
## Encoder characteristic

Encoding characteristics over recommended operating range and recommended mounting tolerances unless otherwise specified.

Parameter	Symbol	Min.	Typ.	Max.	Unit
Pulse width error	$\Delta P$		$\pm 7$	$\pm 40$	°e
State width error	$\Delta S$		$\pm 5$	$\pm 40$	°e
Phase error	$\Delta \Phi$		$\pm 2$	$\pm 25$	°e

## Pin-out description

Pin	Output pin	Description	Wire colors (UL 10002) <sup>M1</sup>
1	Vcc	Power supply	red
2	I+	Channel I+	green
3	I-	Channel I-	blue
4	B+	Channel B+	purple
5	B-	Channel B-	brown
6	A+	Channel A+	yellow
7	A-	Channel A-	white
8	GND	Ground	black



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

## Mechanical characteristics and drawings

Parameter	Value	Tolerance	Unit
Dimensions	42.5 x 31.0 x 23.9		mm
Weight	17		g
Shaft diameters $\varnothing$	1.8 / 2.0 / 2.3 / 2.5 / 3.0 / 3.175 / 3.969 / 4.0 / 4.763 / 5.0 / 6.0 / 6.35 / 8.0 (see Fig.2 below)	$\pm 0.01$	mm
Motor shaft length protrusion <b>L</b>	9.5 (see Fig.2 below)	+ 1.5	mm
Max. motor mounting boss diameter <b>D</b>	13.0 (see Fig.2 below)		mm
Max. motor mounting boss height <b>H</b>	2.0 (see Fig.2 below)		mm
Max. motor axial shaft play		$\pm 0.25$	mm
Max. motor shaft eccentricity + radial play	0.05 (eccentricity decreases signal performances)		mm
Screws for fixing	2 X M3 (DIN 965) 3 X M2 (DIN 7985)		
Tightening torque of the screws	15	-5	Ncm
Flange print	Refer to Fig.3 below		
Protection grade	IP50 (according to DIN 40500)*		
Plastic material	PBT, 17% glass fibre reinforced UL 94 V-0		

Note: \* When the encoder is properly assembled

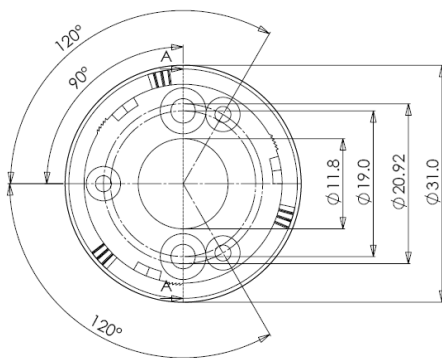


Fig. 1 Flange dimension

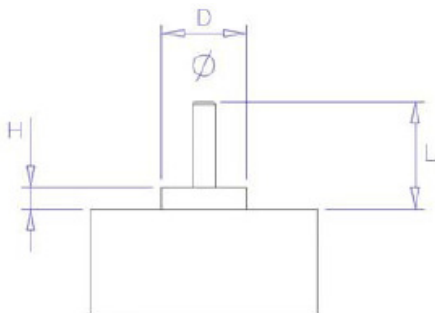
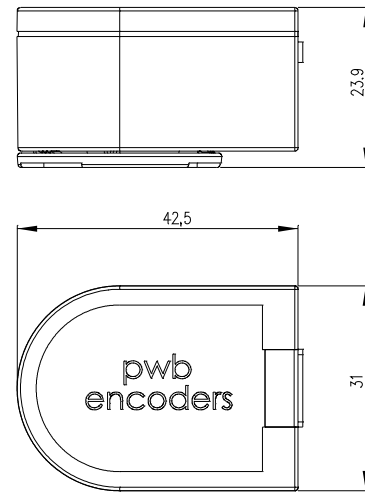
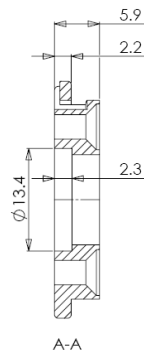


Fig. 2 Motor shaft tip

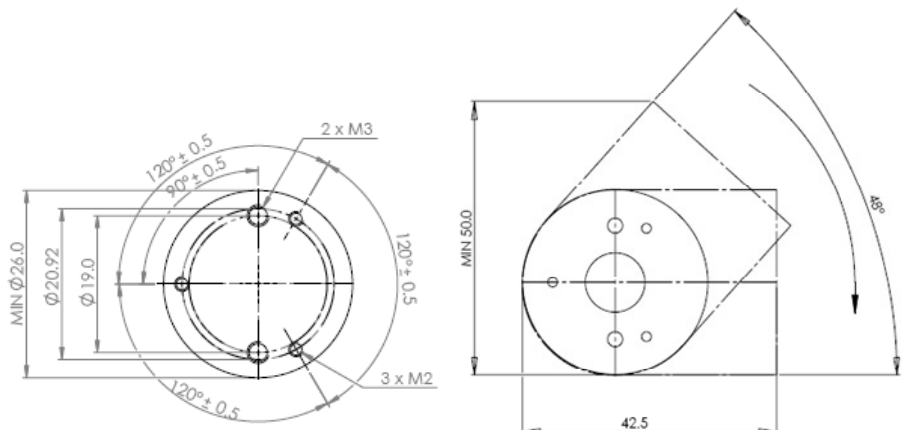
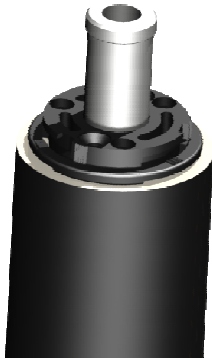


Fig. 3 Flange print

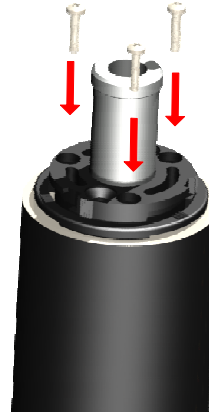
**AE30 MOUNTING INSTRUCTION**

1



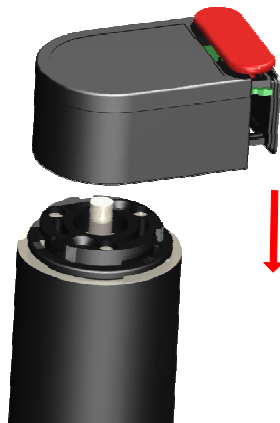
Align the base plate to the motor shaft by using the centering gauge

2



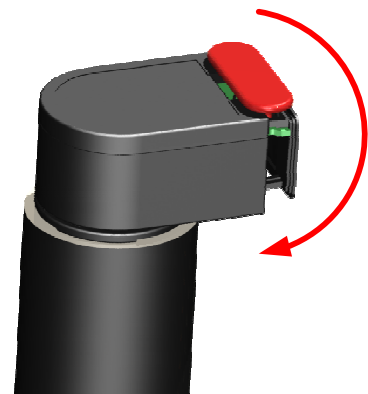
Afterwards fix the base plate to the motor flange using two screws (M3) or three screws (M2)

3



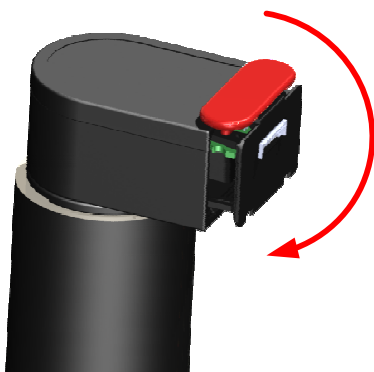
Align the hole of the hub to the motor shaft and push the encoder until it will touch the flange

4



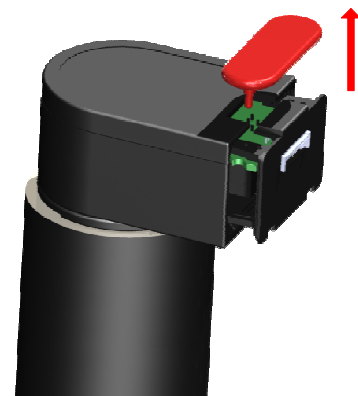
When the encoder fits totally onto the flange, start to rotate the encoder clockwise.....

5



..... until a stop point is reached

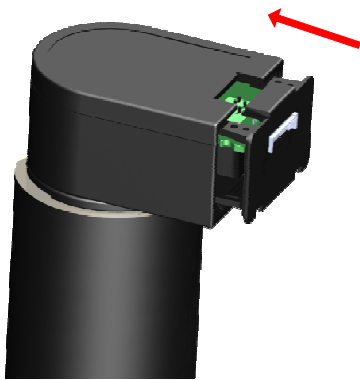
6



After assembling the encoder on the flange, remove the stopper.

**AE30 MOUNTING INSTRUCTION**

7



Push the wall into the housing into its final position.

8



Now the encoder is ready for use.

**WARNING**



**Do not rotate the encoder after assembly or when it is in operation.**



**Do not pull out the wall after assembly or when it is in operation.**

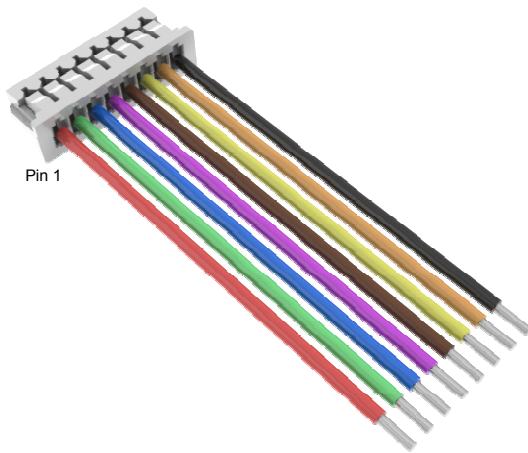
**ATTENTION!**

The encoder is designed to be assembled only one time, otherwise the guarantee will be voided.

Note: see IMPORTANT NOTICE (page 9)

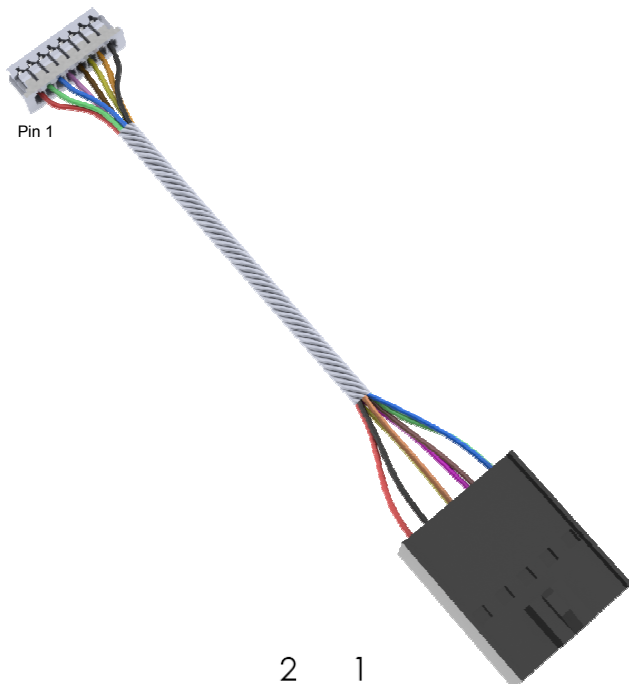
**Available accessories**

**Standard cable**

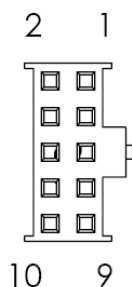


Cable 300 mm length UL 10002 / AWG28  
with female housing connector:  
Wennmacher CX-H-125-8 with CX-T125F terminals

**Adapter cable**



Twisted adapter cable 500 mm length UL10002 / AWG28  
with female housing connector:  
8-pin Wennmacher connector  
(Wennmacher CX-H-125-8 Housing with CX-T125F terminals)  
to a 10-pin Molex connector  
(Molex 90142-0010 Housing with 90119-2121 terminals)

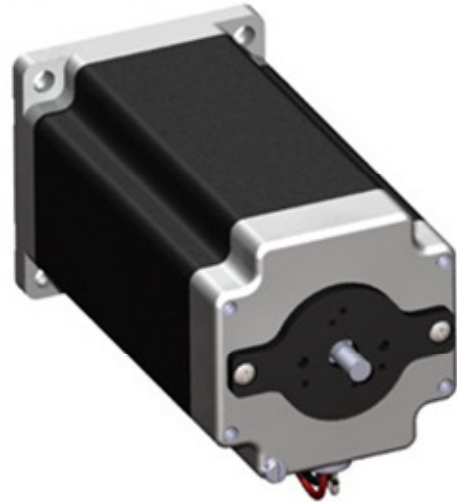


Connector front view

**Pin-out description 10 pin connector side**

Pin	Output pin	Description	Colors
1	N.C.	Not connected	
2	Vcc	Power supply	red
3	GND	Ground	black
4	N.C.	Not connected	
5	A -	Channel A-	white
6	A +	Channel A+	yellow
7	B -	Channel B-	brown
8	B +	Channel B+	purple
9	N.C.	Not connected	blue
10	N.C.	Not connected	green

## Available accessories



Customized adapter plate



Centering gauge for different motor shafts



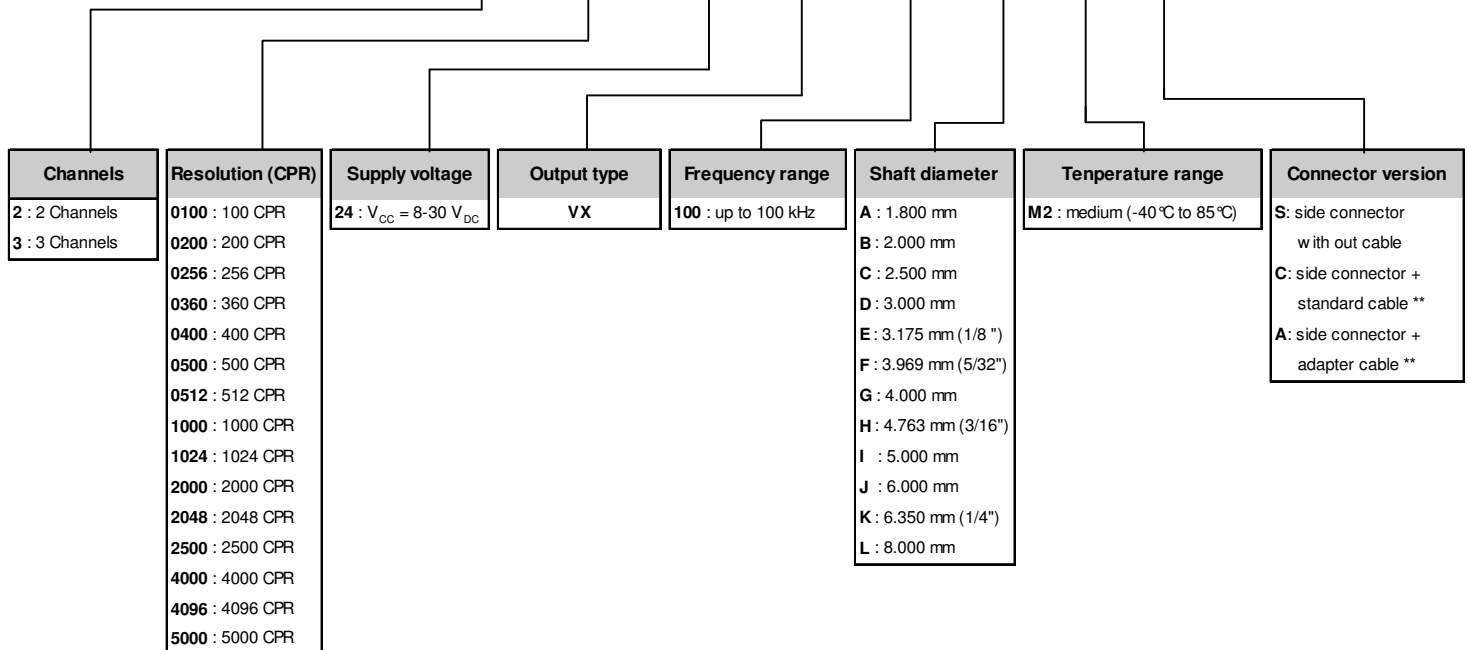
Screws 3 pcs DIN 7985 M2 X 8



Screws 2 pcs DIN 965 M3 X 8

## Ordering codes

**AE30 - X - XXXX - XX - XX - XXX - X - XX - X**



Available accessories (no parts of standard delivery):

- standard cable 300 mm length
- adapter cable 500 mm length
- adapter plates for different motors
- centering gauge for different motor shafts (highly recommended for correct assembly)
- fastening screws 3pcs DIN 7985 M2 X 8
- fastening screws 2pcs DIN 965 M3 X 8

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Patents: US: 7394219 DE:102004036903.8 EP: 1621854 JP: 2006038867



## IMPORTANT NOTICE

The encoder is so designed that it may be assembled only one time, otherwise the guarantee will be voided.

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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