



Installation Manual

SC Encoder



SPEED TECH A/S

Nybrovej 97. DK2820 Gentofte. Phone: +45 45938545 Fax: +45 45938544
www.doorcontrol.dk - info@speed-tech.dk

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1 Introduction

The SC Encoder is an integral encoder based on signal from a rotating magnet. The system is primarily designed for use with automatic door systems. The encoder is mounted in the motor fan housing and the magnet is mounted on the motor shaft. This makes it universal, as it has no requirements on the motor flange or gearbox.


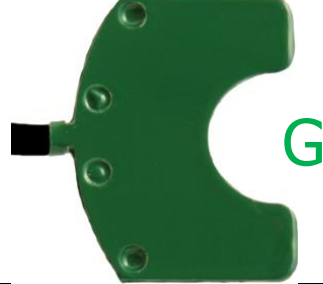

- Economical solution
- High reliability.
- No maintenance.
- Simple 4 wire connection.
- Mechanical protected assembly - Mounted in the motor fan house.
- 3 pulse numbers 4, 20, 50 pulses per revolution.
- Same encoder to ALL motor sizes.



**Read this manual carefully before mounting the encoder.
The magnet is sensitive and should not be exposed to shock or impact.
Keep the magnet away from items that may be sensitive to magnetic influences such as screens, credit card etc.**

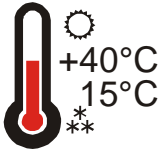
2 Identification

The Encoder is available with 3 different pulse counts. Each pulse count has its own color code. See table below:

Pulse pr. rev:		Typical Use:
4		Gearmotor with large ratio > 20:1
20		Gearmotor
50		Sliding door without gearbox

3 Installation instructions

The two parts of the encoder is mounted in the motor fan housing, see description of the parts below:






Note that the encoder can not be installed in temperatures below 15 ° C when the tape will not adhere properly. The tape will be hardened 50% after 20 min and 100% at 72 hours.

3.1 Encoder

The encoder circuit board is mounted inside the fan cowl. In connection with door control applications, the fan can usually be removed. This makes it easier to lead the encoder cable from the motor.

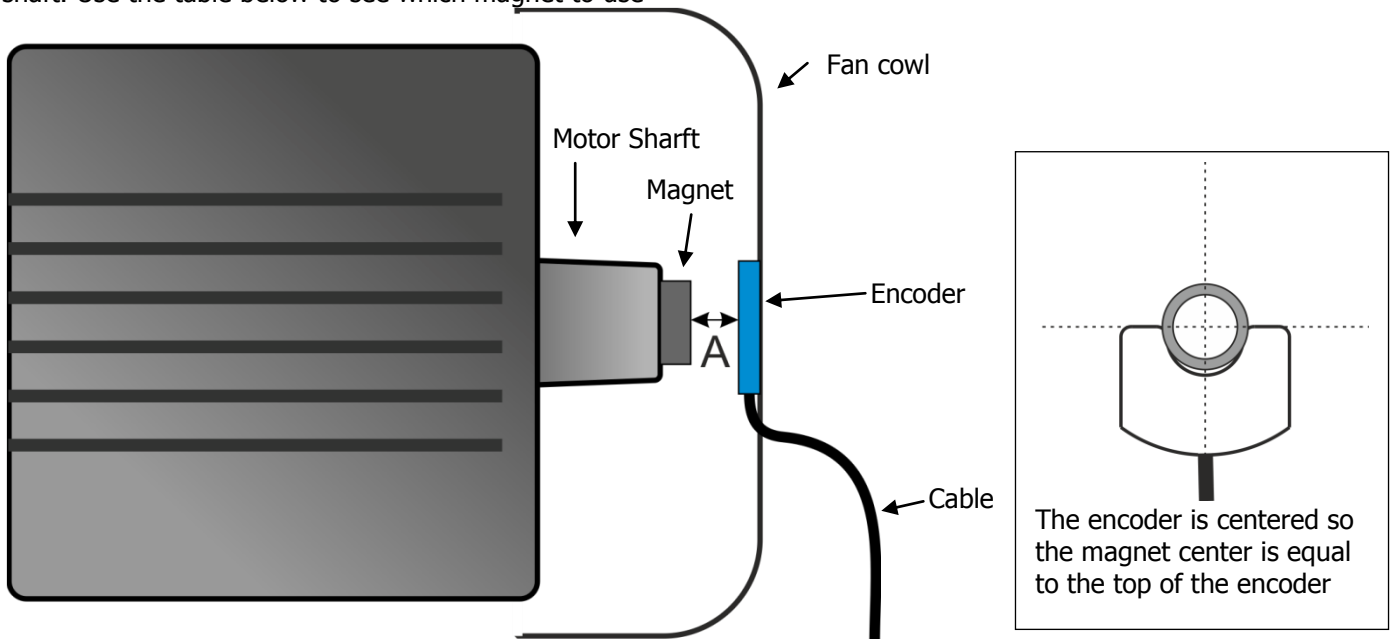
Remove the fan cowl before mounting the encoder so it does not damage the magnet and encoder.

Mounting the encoder step by step:		
1	Fan cowl removed	
2	Degreased fan cowl internally where encoder must be mounted with the supplied alcohol wipe from 3M VHB tape	
3	Remove protective foil from the back of the encoder and center it carefully so the circle is in the middle of the fan cowl.	
4	Continue to next section for mounting the magnet	

Do not use the motor before minimum 20 min after mounting the encoder / magnet as VHB tape will harden to 50% of its strength during this time.

3.2 Magnet



The Magnetic type and installation of the magnet depends on which type of motor is to be used. The Encoder requires certain strength of the magnetic field, therefore, determine the type of the magnet from the distance between the magnet and encoder. The distance is measured from the blower inside the motor shaft. Use the table below to see which magnet to use





Distance A:	8mm – 15mm	10mm – 30mm
Magnet type:		
Type no:	Magnet 1 (standard)	Magnet 2 (option)

Ring Magnet can be used if the motor has an output shaft for manual opening of the door.

Mounting the magnet:

1	<p>Degrease the motor shaft with VHB cleaning towel. The temperature should not be below 15 ° C when the tape would not want to stick properly.</p>		
2	<p>The magnet is mounted centered on the motor shaft. This must be done carefully since the encoder will not function correctly with unbalanced magnet assembly (\pm ca. 0.5 mm). The picture shows the motor with the Fan and Cowl removed.</p>		

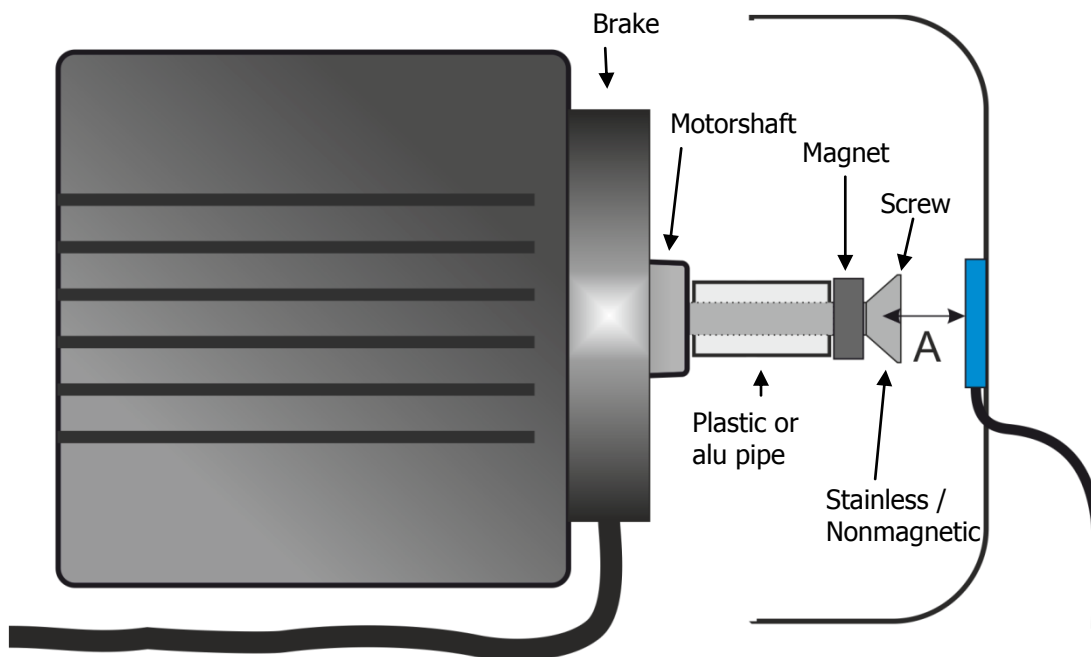
SC Encoder

3	<p>Lead the cable out from the fan cowl so that it does not get pinched or can hit the propeller of the fan if it is mounted. Note the "Cable tie" mounted for strain relief.</p>	
4	<p>Here the fan is removed so that the cable easily and safely can be placed along the fins towards the terminal box.</p>	
5	<p>The motor is now ready for installation</p>	

3.3 Fitting alternative

In cases where the motor is mounted with an electromechanical brake, magnetic interference can occur on the motor shaft. This may cause wrong count of the encoder.
It is possible to avoid this by isolating the magnetic field from the shaft by a nonmagnetic bush / screw.

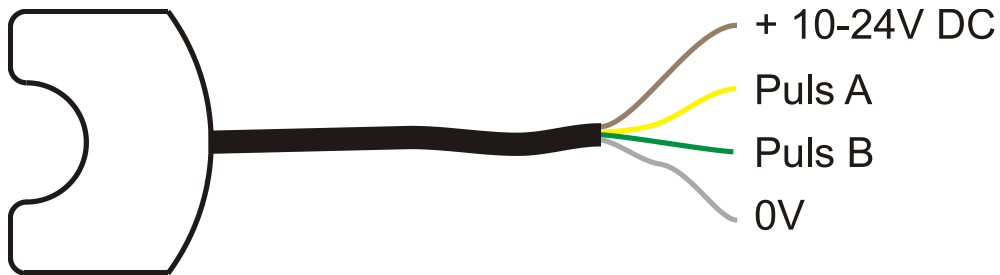
Distance "A" must be 8-15 mm after mounting



3.4 Electrical connection

The Encoder has 4 colored wires connected according to the table below.

To function properly it must be connected to a supply voltage of 10 to 24V DC. When properly installed will A / B output a signal which is phase shifted 90 (Quadrature signal).



3.5 Connection to SCD Door control

Wire:	Connection:	SCD:	SCDmini:
Brown	10-24V DC	X1.7	Terminal 5
Yellow	Pulse output A	X1.8	Terminal 6
Green	Pulse output B	X1.9	Terminal 7
White	0V	X1.10	Terminal 10

4 Ordering numbers

When ordering, use the following format to determine the pulse count / magnetic type:

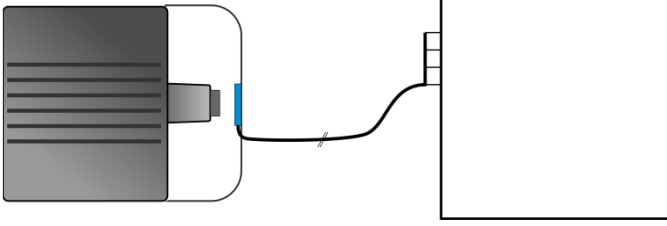
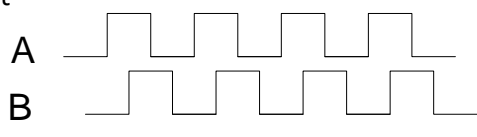
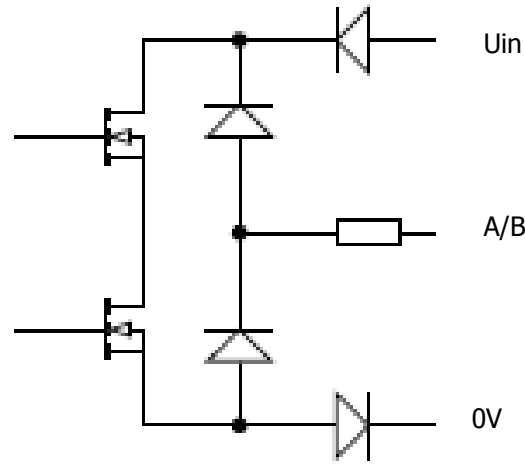
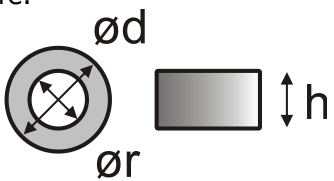
	Pulse Count:	Magnet Type:
SCE -	50 -	1
Variants:	4-20-50	1-2

Standard stocked types:

Type Nr:		
SCE-	4	1
SCE-	20	1
SCE-	50	1

Note that standard is, magnet type 1 and cable length 5 meters.

5 Technical Data

Supply Voltage:	10 – 24V DC / 300mV												
Output Signal:	HTL A & B 90 degrees shifted for UP/DOWN count												
<p>Motor with Encoder Counter equipment</p> 	 												
Power:	25mA												
Signal Level	$U_{high} \geq U_B - 4V$ $U_{low} \leq 1V$												
Max. Pulse frequency:	10KHz (6000 rpm with 50 pulse encoder)												
Phaseshift tolerance:	45° - 145° (Speed dependent)												
Min. Phaseshift distance:	25 μ S												
Time delay: (Computation time)	200 μ S												
Temperature range:	-10°C til +50°C												
Humidity:	90% max.												
Isolation:	IP55												
Cable:	4 x 0,14 □ Length 5 meter - Max length 30meter												
<p>Magnet measure:</p> 	<table border="1"> <thead> <tr> <th>Type:</th> <th>d:</th> <th>r:</th> <th>h:</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>17.8mm</td> <td>10.0mm</td> <td>4.0mm</td> </tr> <tr> <td>2</td> <td>18.0mm</td> <td>10.2mm</td> <td>10.0mm</td> </tr> </tbody> </table>	Type:	d:	r:	h:	1	17.8mm	10.0mm	4.0mm	2	18.0mm	10.2mm	10.0mm
Type:	d:	r:	h:										
1	17.8mm	10.0mm	4.0mm										
2	18.0mm	10.2mm	10.0mm										
<p>Dimensions:</p> <p>L: 35,6mm W: 27,2mm H: 5,0mm</p>	