

SKF Motor Encoder Unit BMB-6022E



The BMB version of SKF Motor Encoder Unit is an optimized design to fit industrial motors environment (for detailed specification, please contact SKF representative).

Revision	Comment	Date	YYYY/MM/DD	SKF validation
1	Initial release		2010/03/30	F. Niarfeix
2	Datum added according to BMB-6022C		2010/05/19	F. Niarfeix
3	Impulse ring version update		2010/08/06	F. Niarfeix
4	Cable specification update : UL style and indenfication		2011/04/15	F. Niarfeix
5	General template & bearing tolerancing updated, REACH & RoHS compliance added, connector overmolding material changed, voltage values revised		2016/07/06	F. Niarfeix

The customer acknowledges these specifications by signing in the table below.

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- Images not contractual

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BMB-6022E

Electrical specifications

Fig. 1. Connection illustration

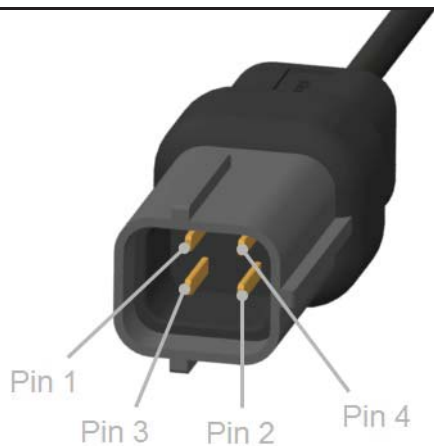


Table 1. Cable specifications

Parameter	Value
Conductor size	AWG 24 (4 multiwires)
Cable features	Fuel, oil & grease resitant, UL certified
Cable insulation resistance (20°C)	100 MΩ Km minimum
Voltage withstand	2500 V for 5 minutes, 60Hz, rms
Wire diameter (with insulation)	1.016±0.051 mm
Cable diameter	See page 5
Min. bending radius	12 mm
Cable strength relief	120 N

The SKF Motor Encoder Units are RoHS and REACH compliant.

Component wires recognised to UL Style 1385, Jacket & finished cable recognised to UL Style 4389. The cable jacket is marked with extrusion, UL style, cable assembly reference and year of manufacture.

Table 2. Connections

Pin	Wire color (if applicable)	Functions
1	Red	Power supply
2	Blue	Signal B
3	White	Signal A
4	Black	Ground



BMB-6022E

Electronical specifications

The SKF Motor Encoder Unit gives two open collector signals. To use these signals, a pull-up resistor must be connected in parallel between signals line and power supply line (→Fig. 2). These resistors limit the output current (→Table 3).

$$R_{\text{pull-up (k}\Omega)} = \frac{\text{Power supply (V)}}{\text{Output current (mA)}}$$

Fig. 2. Connection scheme

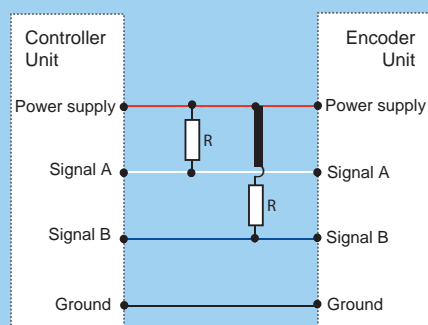


Fig. 3. Signals chronogram

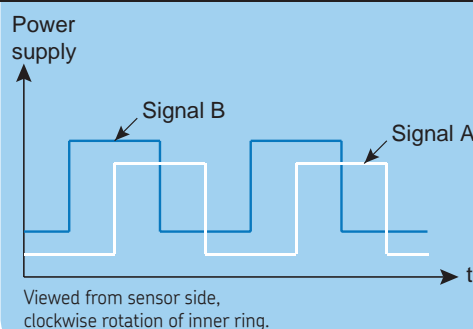


Fig. 4. RC3 filter

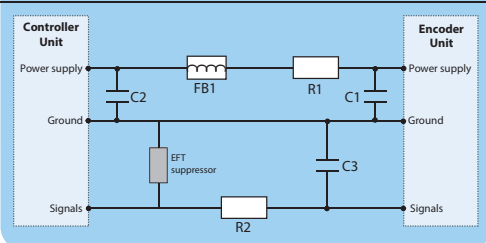


Table 3. Operating parameters

Parameter	Min.	Max.	Unit
Supply voltage VCC	+4.5	+18	V DC
Reverse polarity protection	-	-18	V DC
Supply current	-	13	mA
Power consumption at +12V DC	-	144	mW
Low level (one output)	0	0.4	V
High level (one output)	VCC - 0.5	VCC	V
Relative humidity	0	95	%
Insulation resistance	10	-	MΩ
R _{pull-up} (at 13.5V, as example)	680	3300	Ω
Ambiant operating temperature	-40	+120	°C
Peak temperature (short time)	-	+150	°C

Table 4. Signal parameters (Measured in stand-alone condition, without application influence)

Signal parameter	Min.	Typ.	Max.	Unit
Number of pulses per revolution		64		
Period accuracy	-4	0	+4	%
Duty cycle	40	50	60	%
Phase shift between the two signals	60	90	120	°

Table 5. Signal description

Parameter	Value
Sensor type	Two hall effect cells
Signal output type	Open collector

Table 6. EMC and environmental validation tests

Test	Standard	Level	Performance
ESD	IEC-61000-4-2	Contact 4 kV Air 8 kV	B B
Radiated immunity	IEC-61000-4-3	10 V/m	A
Magnetic field	IEC-61000-4-8	30 A/m	A
EFT	IEC-61000-4-4	4000 V	B
SKF validation test	SKF STRC 51		
Connector overmolding	SKF STRC 53		

Table 7. BOM of the RC3 filter

Composant identification	Description
R1, R2	Resistor 47 Ω
FB1	Ferrite bead 50 Ω at 20MHz
C1	Capacitor 470nF
C2	Capacitor 47nF
C3	Capacitor 1nF
EFT suppressor	Varistor