

for AC Synchronous & BLDC Motors

- Specially designed for elevator synchronous traction machine
- Wide operating temperature range of -20 °C up to +100 °C, therefore optimum use of motor capacity
- Excellent immunity to interference (EN 61000-4-4, Class 4)
- Innovative LED light source self-adjusting function to ensure the signal quality, improve the life time
- Optional expansion flange or tether mounting, meet the demand of different traction machine installation



Expansion Flange



Tether

TECHNICAL DATA
mechanical

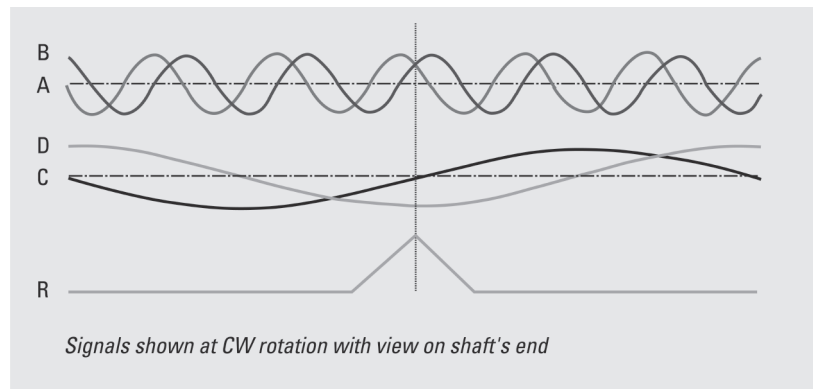
Housing diameter	53.3 mm
Shaft diameter	Cone 1/10
Protection class shaft input (EN 60529)	IP40
Protection class housing (EN 60529)	IP40
Shaft load axial / radial	for tapered solid shaft: 20 N / 90 N
Axial endplay of mounting shaft (hubshaft)	± 0.4 mm
Radial runout of mating shaft (hubshaft)	± 0.1 mm
Max. speed	6,000 RPM
Torque	≤ 1 Ncm
Vibration resistance (DIN EN 60068-2-6)	≤ 100 m/s ² (5 ... 2,000 Hz)
Shock resistance (DIN EN 60068-2-27)	≤ 1,000 m/s ² (11 ms)
Operating temperature	-20 °C ... +100 °C
Storage temperature	-20 °C ... +80 °C
Material housing	Aluminum
Weight	approx. 200 g
Connection	PCB connector and cable

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TECHNICAL DATA
electrical

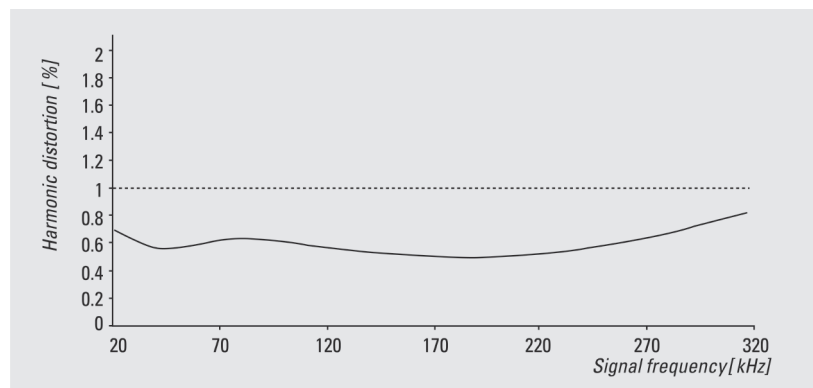
General design	as per DIN EN 61010-1, protection class III, contamination level 2, overvoltage class II
Supply voltage	DC 5 V ±10 %
Max. current w/o load	150 mA
Reference signal R	> 0.4 V (1 pulse per revolution)
Commutation signals C, D	Sine - Cosine 1 Vpp (1 period per rev.)
Incremental signals optional	Sinus-Cosinus 1 Vpp
Number of pulses	2048
Max. output frequency	180 kHz

RS 20 SIGNALS



The incremental signals A and B and the zero signal R are differential voltage signals. The differential signal level is 1 Vpp. The zero signal appears once per revolution and reaches its maximum value at the angle where the amplitudes of A and B Signals are equal. The coarse tracks C and D deliver one sinewave period per revolution and are utilized to determine the absolute rotor position of Brushless DC motors for startup commutation. All signals have a DC offset of 2.5 V.

RS 20 SIGNAL QUALITY



The quality of the servo loop is determined to a large extent by the absence of harmonics in the encoder's sinewave signals, particularly at low speed. In order to achieve high interpolation factors in the sequencing control, the incremental sinewave signals A and B are available with a harmonic distortion significantly under 1% throughout the specified temperature range. This delivers excellent synchronism and a high level of positional accuracy with servo axes.

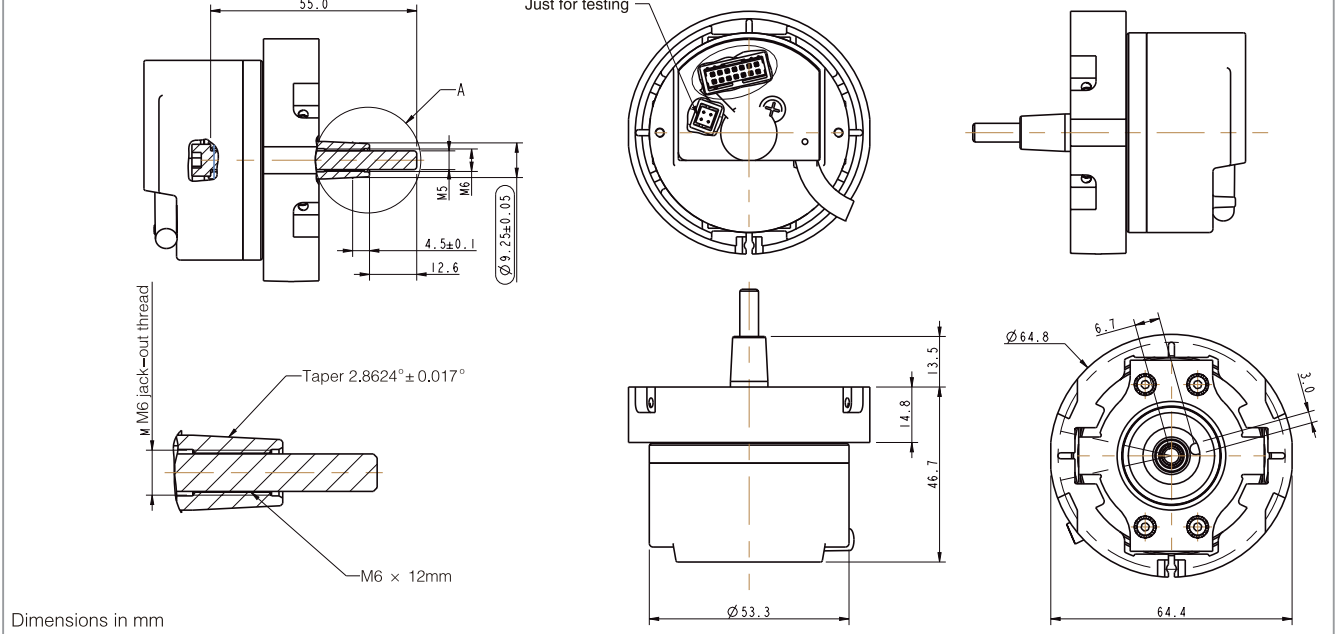
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ELECTRICAL CONNECTIONS
PCB connector

Colour	PIN	Signals
brown	1a	C-
grey/pink	1b	U _B
yellow	2a	A-
black	2b	D+
green/brown	3a	
blue	3b	B+
pink	4a	R-
grey	4b	R+
red	5a	B-
white/green	5b	GND
violet	6a	D-
green	6b	A+
red/blue	7a	
white	7b	C+

DIMENSIONED DRAWINGS

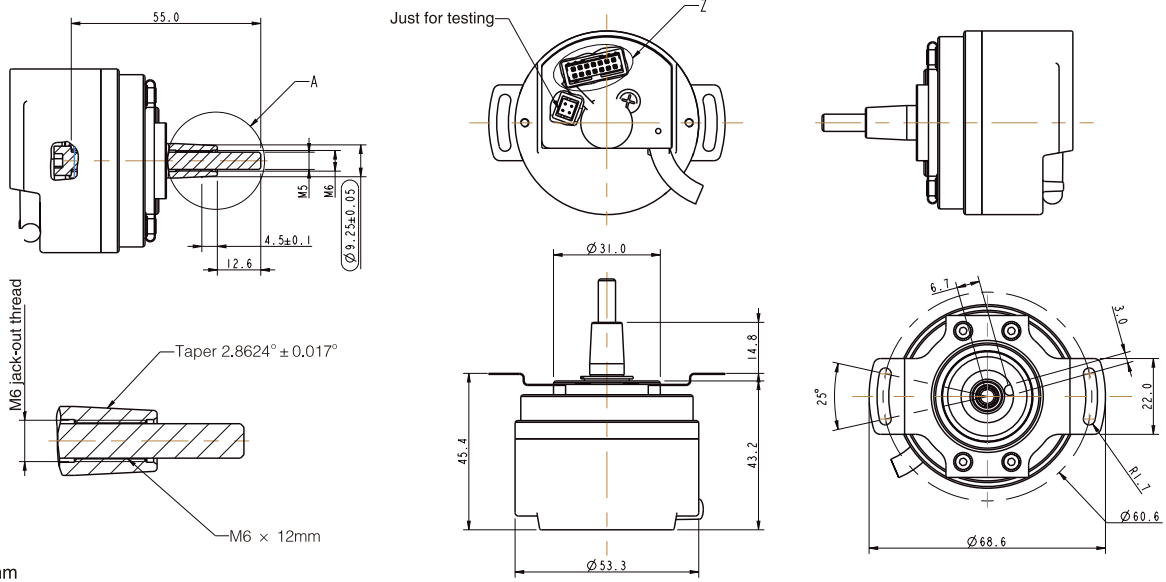
Expansion Flange (A.0K)



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DIMENSIONED DRAWINGS(continue)

Tether mounting (1.0K)



Dimensions in mm

ORDERING INFORMATION

Type	PPR	Supply voltage	Flange,Protection,Shaft	Interface	Connection	Special Code
RS20	2048	A 5 VDC	1.0K \varnothing 60mm Tether, IP40, 10mm Tapered solid shaft A.0K Expansion flange, IP40, 10mm Tapered solid shaft	S Sin-wave	0 PCB connector 14 pole A3 PCB connector 14 pole with mating connector and 0.3m cable D0 PCB connector 14 pole with mating connector and 3m cable F0 PCB connector 14 pole with mating connector and 5m cable H0 PCB connector 14 pole with mating connector and 7m cable K0 PCB connector 14 pole with mating connector and 10m cable P0 PCB connector 14 pole with mating connector and 15m cable	<input type="checkbox"/> <input type="checkbox"/> 2 digits or letters