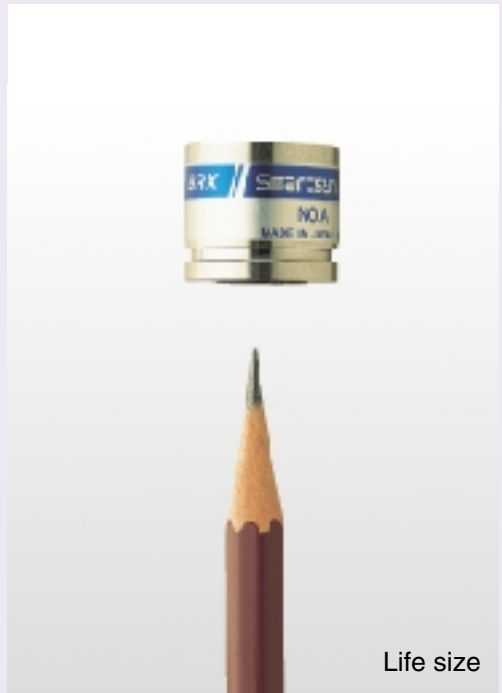


Ultra-small Absolute Angular Resolver

Smartsyn®

SIZE 08



■ Outline

The brushless resolver Smartsyn is an angle sensor that converts rotational angles into electric signals.

Smartsyn, realized by automatic winding, features low cost, high performance, high reliability and high productivity. We have so far been offering Sizes 10, 15 and 21. To respond to the needs for smaller sizes, we now offer the Size 08 Smartsyn. This is the world's smallest brushless resolver based on a novel design concept.

■ Features

- Small size and light weight : The outside diameter is 20.32 mm. The mass is 28 g. The smallest size realized by use of the bare minimum of parts.
- High speed revolution : 30,000min⁻¹ (rpm)
- Wide temperature range : -55 to +155°C (operating temperature limits)
- Environmental resistances : Vibration: 20 G
Shock: 100 G
Humidity: 90%Rh or above
- High reliability : Extremely long life and high reliability are assured by the structure of mechanical parts and automated coil incorporation.
- Absolute position detection : Small but capable of absolute position detection of 360 degrees per revolution.
- Low cost : Low cost realized by automatic winding and reduction in the number of parts.
- Digital conversion : Connect an R/D converter or SmartCoder, and the signals of Smartsyn can be converted into digital angle and speed signals.

■ Specifications (Performance)

The brushless resolver Smartsyn is an angle sensor that converts rotational angles into electric signals.

Model	TS2605N1E64
Function	1X-BRX
Primary	ROTOR
Input Voltage	AC 7 Vrms 10 khz
Electrical error	Within ± 10' (mechanical angle)
Input impedance: Zro	140 Ω ± 20%
Output impedance: Zss	120 Ω ± 20%
Phase shift	+10° nominal
Dielectric strength	AC 500 V 1 min
Insulation resistance	100 MΩ or above

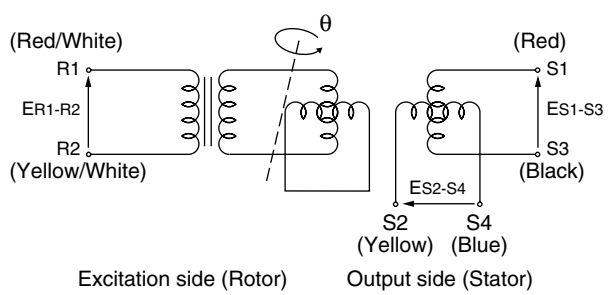


Fig.1 Wiring diagram

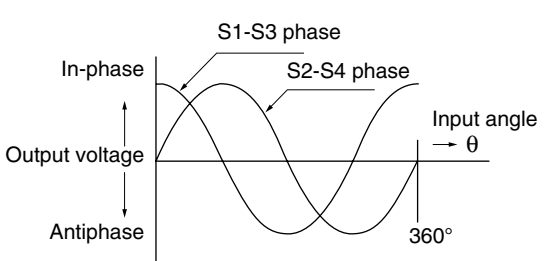
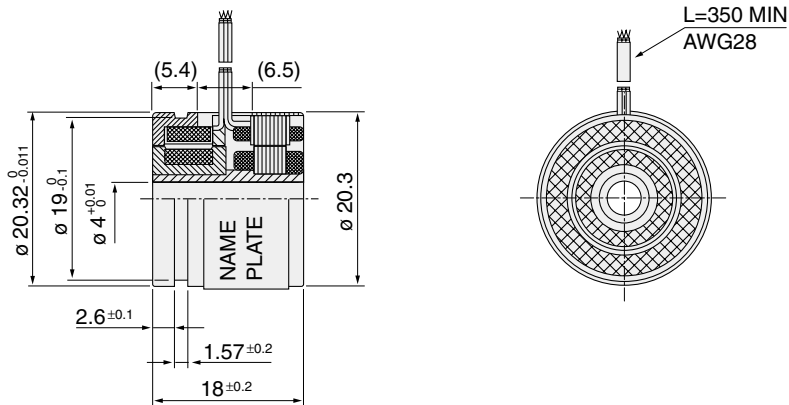


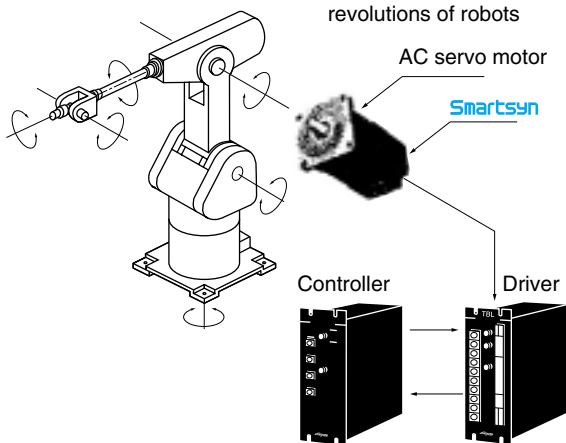
Fig. 2 Output voltage characteristics

Overall Dimensions (TS2605N1E64)

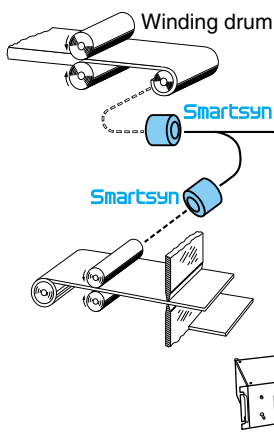


Examples of Applications

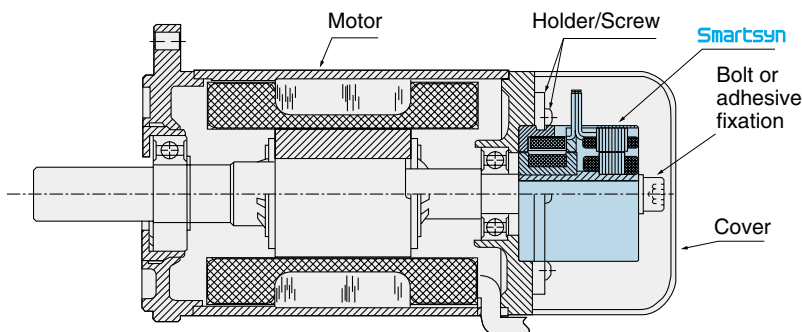
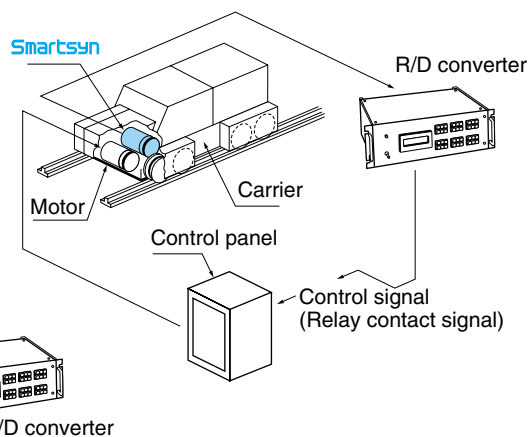
• Drive and detection of wrist and body



• Detection of winding length
• Detection of roll interval



• Detection of traveling position of automatic carrier



To maximize the performance of Smartsyn, take care to achieve the following accuracies in installing Smartsyn:

- (1) Axial runout: Runout of the motor shaft (object of detection) must be 0.03 mm or less.
- (2) Coaxiality: The coaxiality of the case mounting surface of Smartsyn with the motor shaft (object of detection) must be 0.03 mm or less.
- (3) Perpendicularity: The perpendicularity of the case mounting support surface of Smartsyn to the motor shaft (object of detection) must be 0.03 mm or less.
- (4) Axial travel: The relative dislocation in the axial direction between the rotor and stator of Smartsyn must be within ± 0.25 mm.

ENCODER TECHNOLOGY LIMITED

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WARRANTY

Encoder Technology warrants that this product is free from defects in material or workmanship under normal use and service for a period of one year from the date of shipment from its factory. This warranty, however, excludes incidental and consequential damages caused by careless use of the product by the user. Even after the warranty period, Encoder Technology offers repair service, with charge, in order to maintain the quality of the product. The MTBF (mean time between failures) of our product is quite long; yet, the predictable failure rate is not zero. The user is advised, therefore, that multiple safety means be incorporated in your system or product so as to prevent any consequential troubles resulting from the failure of our product.

All specifications are subject to change without notice.

URL <http://www.encoder-technology.com>

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BUILT-IN RESOLVERS

SIZE	08	10	15			21		
Model No.	TS2605N1E64	TS2610N171E64	TS2620N21E11	TS2620N271E14	TS2620N691E126	TS2640N321E64	TS2640N691E125	
Type	BRX	←	←	←	←	←	←	
Primary	R1-R2	←	←	←	←	←	←	
Input Voltage/Frequency	7Vrms 10kHz	7Vrms 10kHz	7Vrms 10kHz	10Vrms 4.5kHz	10Vrms 4.5kHz	7Vrms 10kHz	5Vrms 4kHz	
Transformation Ratio	0.5±5%	0.5±5%	0.5±5%	0.5±10%	0.5±10%	0.5±5%	0.5±10%	
Error	±10' Max.	±10' Max.	±10' Max.	±10' Max.	±8' Max.	±10' Max.	±8' Max.	
Null Voltage	20mVrms Max.	20mVrms Max.	20mVrms Max.	20mVrms Max.	20mVrms Max.	25mVrms Max.	—	
Phase Shift	+10° Nom.	+5° Nom.	0° Nom.	+8° Nom.	+3~+13°	-5° Nom.	+0~+10°	
Impedance	Z _{Ro}	140Ω	160Ω	70+j100Ω	90+j180Ω	90+j180Ω	110+j140Ω	290Ω Nom.
	Z _{So}	—	160Ω	180+j300Ω	220+j350Ω	220+j350Ω	150+j270Ω	—
	Z _{Ss}	120Ω	130Ω	175+j257Ω	210+j300Ω	210+j300Ω	130+j240Ω	420Ω Nom.
Operating Temperature	-55~+155°C	-55~+155°C	←	←	←	←	←	
Max. Operating Speed	30,000min. ⁻¹	10,000min. ⁻¹	←	←	←	←	←	
Mass	0.028kg	0.04kg	0.06kg	0.07kg	0.065kg Max	0.22kg	0.25kg	
Output Type	Reverse	Reverse	Normal	Normal	Reverse	Normal	Normal	

OUTLINE

(DIMENSION : mm)

SIZE 08 TS2605N1E64

