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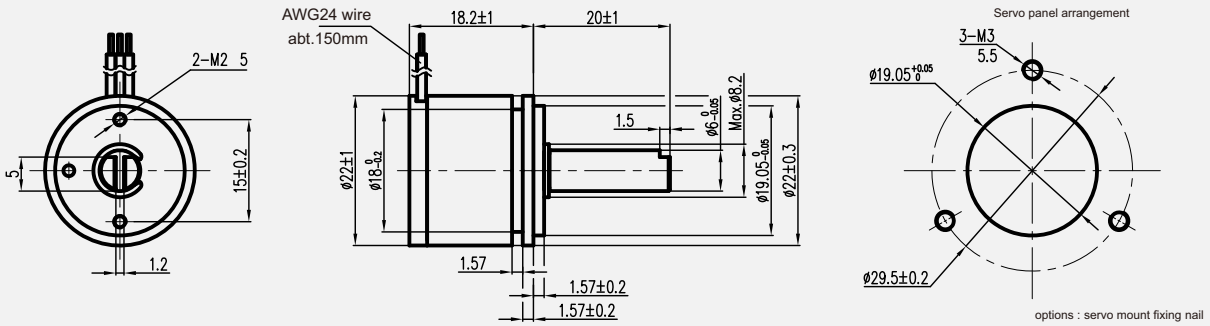
R22 Series Contactless potentiometer / Hall encoder (Patented)

R22

- **Hall effect**
- **High protection degree**
- **With 1 set of precision ball bearings**
- **Servo / Screwmount**

■ Standard Dimensions



■ Selection Guide

Example: R22 0505 P W360

R	→	Series	**R**	High performance version	
22	→	Dimensions	**22**	Housing diameter Φ22mm	
	→	Output signal type	**None**	Absolute analog signal Absolute digital signal	
0505	→	Input voltage / Output signal		**Absolute analog signal**:	
			0505	5V±10% / 0 ~100%Vcc	
			2410	15 ~ 30V / 0 ~10V	
			2442	15 ~ 30V / 4 ~20mA	Note.1
				Absolute digital signal:	
			SER	5V±10% / SER	
			3.3SER	3.3SER: 3.3V±10% / SER	
P	→	Output characteristics	**None**	Single output	
			P	Dual parallel output	
			X	Dual cross output	Note.2
W	→	Output direction	**W**	Clockwise	
			C	Counterclockwise	
360	→	Electrical angle	**360**	Electrical angle: 360°	Note.3 Note.4

Note.1	→	**Special output range** Any output range within 0% ~ 100% can be provided, as 10% ~ 90% etc.
Note.2	→	**Dual output** Available for other output signal with different slope besides dual parallel and cross output.

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Note.3	→	**Special electrical angle** Available for special effective electrical angle within 360°, output within non-effective electrical angle can be held on high, low and both ends. If the effective electrical angle is less than 45°, independent linearity tolerance and resolution will be influenced. For more details, please contact with us.
Note.4	→	**Customized signal characteristic** Available to set at most 6 rising or horizontal segment, please refer to “output characteristics” for details.

■ General Mechanical Specifications

Mechanical angle	360º (Endless)
Protection degree	IP67
Operating torque	<1mN.m
Max.speed	6000rpm
Life expectancy	100,000,000
Mass	Approx.25g
Housing material	Anodized aluminum alloy
Shaft material	Stainless steel

■ Environmental Specifications

Operating temperature range	-40ºC ~ + 85ºC
Storage temperature range	-40ºC ~ + 85ºC
ESD durability	(Contact discharge) ± 8KV, (Aerial discharge) ± 15KV, EN61000-4-2:2009
EMS durability	10V/m (80MHz ~ 1GHz, 1KHz 80% Amplitude modulation) EN61000-4-3:2006+A1:2010

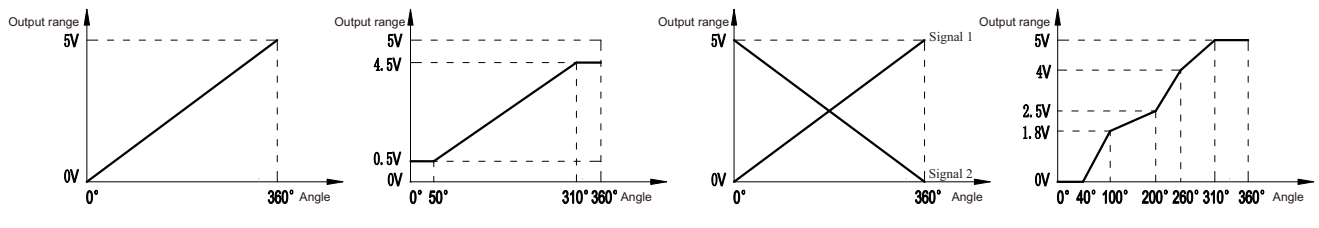
■ General Electrical Specifications

Absolute analog signal

Standard model	R22 0505 W360	R22 2410 W360	R22 2442 W360
Applied voltage	5V±10%	15 ~ 30V	15 ~ 30V
Output signal	0 ~ 100%Vcc	0 ~ 10V	4 ~ 20mA
Current consumption (no-load)	<16mA	<25mA	<35mA
Output deviation of both ends	<%1.VCC	<50mV	<0.05mA
Load resistance	>10KΩ	>10KΩ	<600Ω
Electrical angle		360º	
Independent linearity tolerance		±0.3%	
Resolution		4096 (12 Bit)	
Update rate		0.3ms	

Terminal connection instructions		
Red	Black	White
VCC	GND	OUT

Output characteristics



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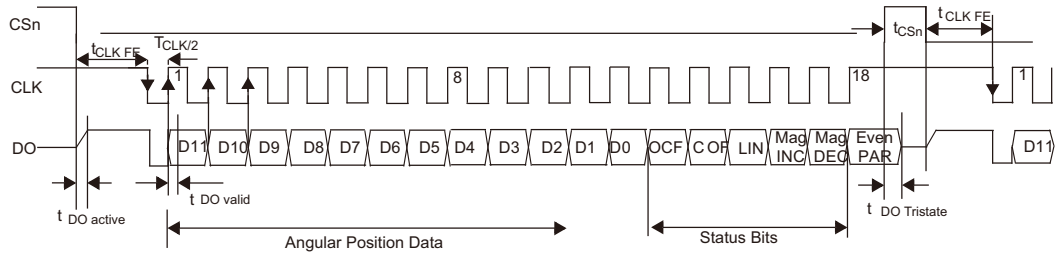
Absolute digital signal

Standard model	R22 SER W360	R22 3.3 SER W360
Applied voltage	5V±10%	3.3V±10%
Output signal	SER (With status bit data output like SSI)	
Current consumption (no-load)	<50mA	
Electrical angle	360º	
Independent linearity tolerance	±0.3%	
Resolution	4096 (12 Bit)	
Update rate	0.38ms	

Terminal connection instructions				
Red	Black	White	Green	Yellow
VCC	GND	DO (Data output)	CS (Chip select signal)	CLK (Clock signal)

Signal timing diagram



tCSn>500ns tCLKFE>500ns CLK<1MHZ

■ Special Specifications Available

Other output signals	Available for incremental: PWM, SSI, SPI.
Special shaft	Special length of shaft, special diameter or special machining on shaft (like shaft slotted, fatted etc.)

*** For other special requirements, please contact with us.**

(In case of the potentiometer with special specifications, the general mechanical, electrical specifications and environmental specifications may change. Please consult with us in advance.)
(All details given in this catalog may be subject to change without prior notice in order to continuously improve qualities and designs of our products.)