

Magnetic rotary encoder – Solution for Harsh Environment.
Compact, flat design, easy direct mounting on a shaft.

Incremental Rotary Encoder

JR105

SERIES

Standard Type with AB Signals

Operating Temperature

-20°C~+90°C

JR205

SERIES

Standard Type with ABZ Signals

Operating Temperature

-20°C~+90°C

JR215

High Temperature Resistant Type

Operating Temperature

-20°C~+115°C

JR305

High Humidity Resistant Type

Operating Temperature

-30°C~+90°C



Features

- Magnetic encoder exceeds optical encoder in resistance against harsh environments.
- Easy direct mounting on motor shaft without coupling.
- No difficult adjustment like shaft concentricity alignment is required.
- High signal accuracy based on direct pulse numbers without any interpolation.
- High frequency response up to 200kHz for high speed revolution.
- Extended line-up to meet wide range applications.
- Conforming to EC Directive to be accepted in European market also.



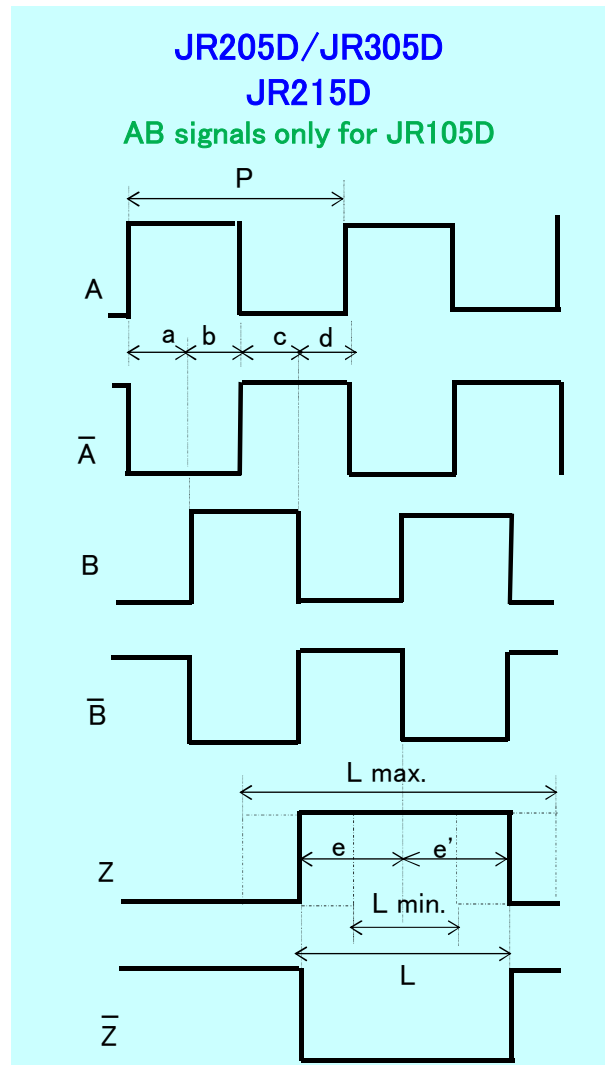
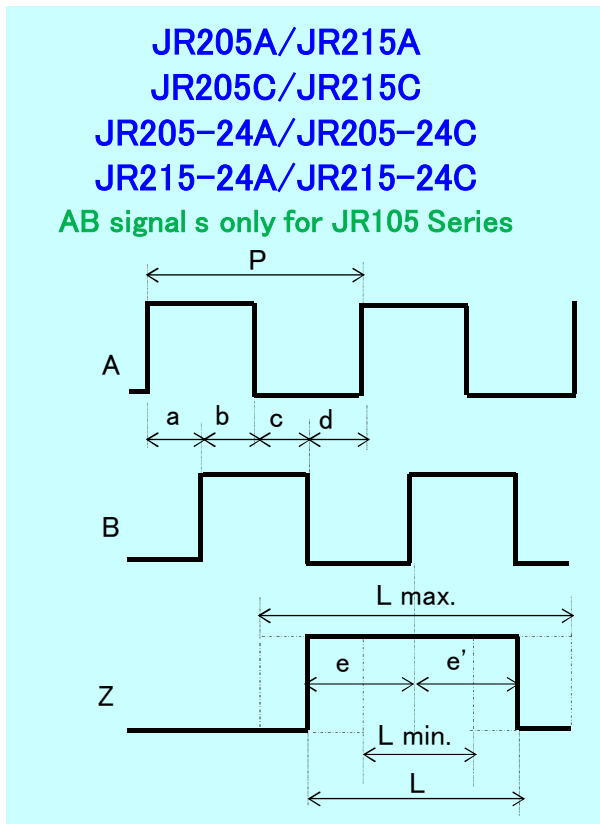
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High reliability with magneto-resistive sensor

High signal accuracy with direct outputs from magnetic poles

Output waveforms

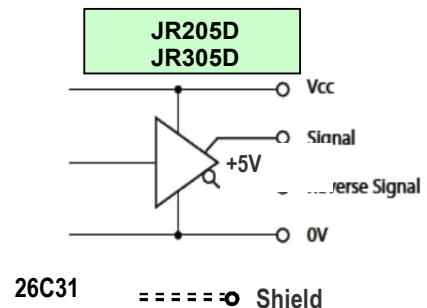
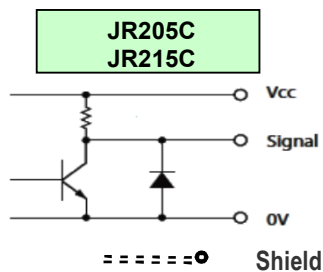
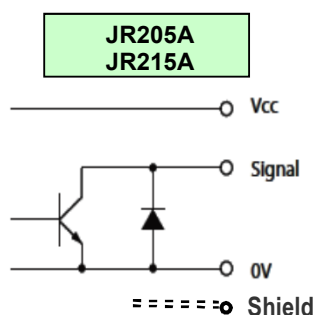
CW rotation : as viewed from mounting bracket side.



Output specification

- Z signal : 1 pulse per revolution
- $a, b, c, d = P/4 \pm P/8$
- $0.4 \leq (a+b)/(a+b+c+d) \leq 0.6$
- $P/2 \leq L < 3P/2$
- Absolute pitch error $\leq P/20$
- The position of Z phase against A,B phase is not specified.

Output circuit diagram



Special specification on

- The positions of Z phase and A,B phase is specified.
Example : $P/4 \leq e', e \leq 3P/4$
- Negative logic Z signal
(for open collector or voltage output type)
- Extended cable length.
(Standard 500mm+ 500mm x n)

Notes for D type.

- A capacitor ($0.01 \mu F$) is connected between 0V and encoder case (frame ground).
- Current consumption and "signal rise and fall times" are detected with "the parallel method" which has the parallel termination consists of 110Ω resistor connected across the differential inputs at the RS422 resistor (26C32), for example. Long transmission distance may cause slightly different output.

Line-up to meet wide range applications.
High temperature resistance, fast response speed

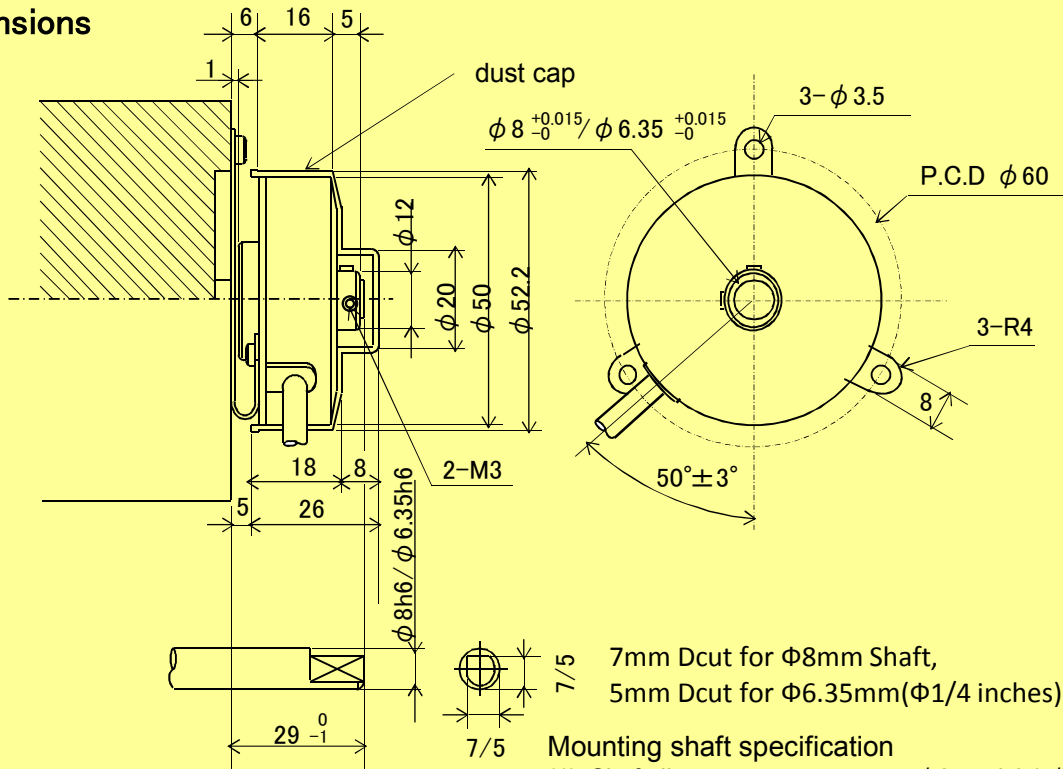
Specification

Model name	JR105A JR205A JR215A	JR105C JR205C JR215C	JR105D JR205D	JR305D High Humidity resistant JR105 available
Resolution (pulse per revolution)	JR205: 300, 360, 500, 1000, 1024, 2000, 2048 JR215: 300, 360, 500, 1000, 1024			500, 1000, 1024
Input voltage	JR205A/C : DC4.75V ~ 13.2V JR215A/C : DC4.75V ~ 13.2V JR205-24A/C: DC21.6V ~ 26.4V JR215-24A/C: DC21.6V ~ 26.4V at the end of standard cable		DC4.75V ~ 5.25V at the end of standard cable	
Current consumption	DC13.2V, DC26.4V: 60mA max. excluding sink current		DC5.25V: 140mA max. refer to the left page bottom	
Output signals	A, B, Z phases		A, \bar{A} , B, \bar{B} , Z, \bar{Z} phases	
Output types	Open collector (NPN, positive logic)	Voltage output (NPN, positive logic)	Line driver output	
Output capacity	+30 VDC max.			
Sink current	35 mA max.		High level : $I_o = -20$ mA max.	
Frequency response	0 ~ 200kHz (to be determined by the resolution and maximum speed)			
Signal rise and fall	1 μ sec. max.		1 μ sec. max. refer to the left page	
Operating temperature	JR205 : - 20°C ~ +90°C JR215 : - 20°C ~ +115°C			- 30°C ~ +90°C Dew condensation permitted.
Storage temperature	JR205/JR305 : - 30°C ~ +90°C JR215 : - 30°C ~ +115°C			
Vibration resistance	2 hours each in X, Y, and Z directions under 58~500Hz/98m/s ² , 0~58Hz/1.52mm(p-p)			
Shock resistance	980m/s ² for 11msec duration applied 3 times each in X, Y and Z directions			
Starting torque	3×10^{-3} N·m max.			
Permissible shaft	Radial direction : 9.8N max. , Axial direction : 4.9N max.			
Moment of inertia	3.5×10^{-6} kg/m ² max.			
Permissible speed	6000rpm max.			
Hollow shaft bore	$\phi 8.00$ mm ^{+0.015} ₋₀ / $\phi 6.35$ mm ^{+0.015} ₋₀			
Standard cable	500 mm			
Weight	120g (including mounting bracket, dust cap and standard cable)			

JR205,215,305

Drawing for Installation (unit: mm)

Dimensions

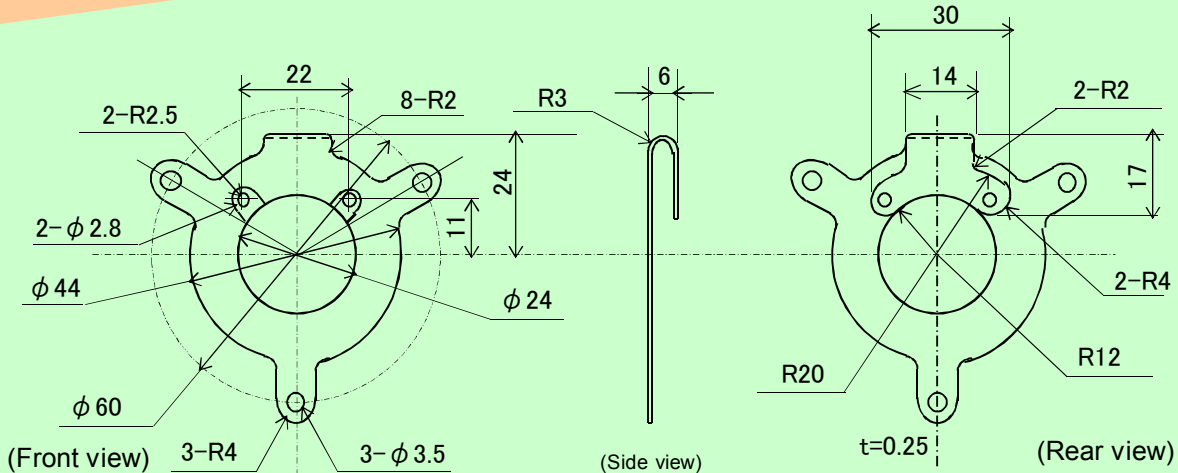


7mm Dcut for $\Phi 8$ mm Shaft,
5mm Dcut for $\Phi 6.35$ mm($\Phi 1/4$ inches) shaft.

Mounting shaft specification

- (1) Shaft diameter: $\phi 8$ mm h6 / $\phi 6.35$ mm h6
- (2) Shaft length: 29 mm
- (3) Shaft deflections: 0.05mm max.
- (4) Shaft end play: Recommended: ± 0.1 mm
Permissible: ± 1.0 mm
- (5) Perpendicularity between shaft and mounting surface: 0.1mm max

JR205,215,305 Standard bracket dimensions (unit: mm)



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