

## Features and applications:

- Absolute Single- and multi-turn rotary encoder with solid shaft or blind hollow shaft
- Interface SSI
- Available resolution up to 16 bits
- Power supply from 5 to 30 Vdc
- Applied in highest industrial requirements



Model	RNK38-J / RNKM38-J	RNK38-T / RNKM38-T	RNK38-K / RNKM38-K
Housing diameter	Ø 38 mm		
Shaft diameter	Solid with clamp flange Ø 6 mm	Solid with synchro flange Ø 6 mm	Blind hollow shaft Ø4 / 5 / 6 / 8 mm
Output signal	SSI		
Supply voltage	10...30 Vdc or 5 Vdc		
Resolution	12-bits 4096 / 13 bits 8192 Max. 16-bits 65536		
Rotation turn no.	1 / 4096		
Accuracy	±2 bit		
Consumption	< 40mA (at 24Vdc) without load		
Code	Gray or Binary		
Max.speed	5000 r/min		
Shaft load	Radial 80N, Axial 40N		
Protection class	IP65 or IP68		
Starting torque	≤3 Ncm		
Operating Temp.	-35°C...85°C ( <-45°C Special make )		
Shock resistance	1000m/s <sup>2</sup> , 6ms ( 100g )		
Vibration resistance	20 g		
Connection type	Cable or Connector		
Connection position	Radial / Axial		

#### Connection

Color	Brown2	White1	Green3	Green4	Gray5	Pink6	Black9	Blue8
Signal	Vcc	0V	CLOCK+	CLOCK-	DATA+	DATA-	Reset	Rotation

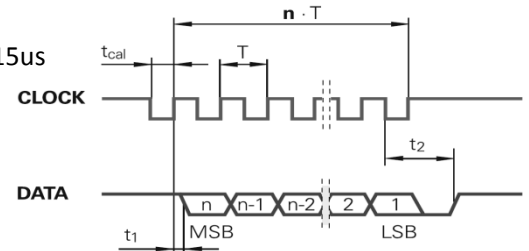
#### Definition of SSI protocol

SSI is synchronous serial signal, the actual two pairs of RS422, one pair of clock trigger, one pair of data transmission. As shown in the figure on the right, the absolute position value of the encoder is triggered by the clock signal of the receiving device, starting from the high bit (MSB) of the Gray code, and outputting a serial signal synchronized with the clock signal. The clock signal is sent from the receiving device, and N interrupted pulses are output with the total number of bits of the encoder. When the signal is not transmitted, the clock and data bits are both high bits. At the first falling edge of the clock signal, the current value starts to be stored. From the rising edge of the clock signal, the data signal begins to be transmitted, and a clock pulse synchronizes one bit of data.

Where:  $t_3$  is the recovery signal, waiting for the next transmission;  $N=13;16;25;28$ . According to the total number of bits of the encoder.  $T=4-11\mu s$ ;  $t_1=1-5.5\mu s$ ;  $t_2 \leq 1\mu s$ ;  $t_3=11-15.5\mu s$  (Clock- and Date- omitted not shown)

In actual use, in order to ensure the stability of the signal and the long transmission distance, the recommended parameters are as follows:

$T=8\mu s$  (125KHz);  $t_1=4\mu s$ ;  $t_2$ (actual reading delay time)=3.4 $\mu s$ ;  $t_3=15\mu s$



**Order Reference:**

	1	2	3	4	5	6	7	8	
	RNK38/ RNKM38 -	XXX	XXX	XX	XXX	X	X	XX	
<b>1. Spec. and Series</b>	Single-turn RNK38J RNK38T RNK38K	Multi-turn RNKM38J RNKM38T RNKM38K							
<b>2. Output signal</b>	<b>SG</b> SSI GRAY <b>SB</b> SSI Binary <b>SGZ</b> SSI GRAY+ABZSGZ <b>SBZ</b> SSI Binary+ ABZSBZ	<b>SG</b> <b>SB</b> <b>SGZ</b> <b>SBZ</b>							
<b>3. Number of turns</b>	<b>B01</b> 1 <b>B02</b> 4096 12 Bits		<b>B01</b> <b>B02</b>						
<b>4. Resolution per turn</b>	<b>12</b> 12 bit (4096 ) ST <b>16</b> 16 bit (65536)			<b>12</b> <b>16</b>					
<b>5. Mechanical mounting dimension</b>	For details, refer to the mechanical dimension ordering code of RNK38 single- & multi-turn absolute encoder								
<b>6. Protection class and body material</b>	<b>0</b> Protection class IP65, Aluminum body						<b>0</b>		
<b>7. Connection position</b>	<b>A</b> Axial <b>R</b> Radial							<b>A</b> <b>R</b>	
<b>8. Connection type</b>	<b>A1</b> Cable Ø6.8mm, 8x2x0.35mm <sup>2</sup> · 1m (ST) <b>AC</b> Connector 8 pins							<b>A1</b> <b>AC</b>	