

# ENCODER CODE EXPLANATION

**RE 16 0 F -2 0 E 3 N -20 A -24P -XXX**  
**1 2 3 4 5 6 7 8 9 10 11 12 13**

## 1. Product Line

RE-Rotary Encoders

## 2. Model

## 3. Derivatives of model

## 4. RoHS Version

F indicates RoHS Compliance

## 5. Kind of Terminal

Code	Terminal Type
2	PC board(horizontal)
4	PC board(vertical)
D	PC board(vertical) for RE111 only

## 6. Switch

Code	Switch
0	Without Switch
1	With Switch

## 7. Kind of Bushing

Code	Diameter
E	M9x0.75
B	M7x0.75

## 8. Bushing Length

Code	Length (mm)
1	5
2	6
3	7

## 9. Bushing With or Without thread

Code	Type
N	Without thread
(blank)	With thread

## 10. Shaft Length (L)

## 11. Shaft Type

Code	Type
K	Knurled type
F	Flat type
A	Flat type with slot

## 12. Resolution

Code	Mode	Pulses/Rotation	
		Pulses	Number of detent
10P	RE701	10	20
10P	RE901	10	20
15P	RE111	15	30
20P	RE111	20	20
15P	RE11L	15	30
12P	RE130	12	12
24P	RE160	24	24

Code	Mode	Position Type
4G	RE170	6-Position Gray Code
4G	RE170	15-Position Gray Code
4G	RE200	16-Position Gray Code
4B	RE200	16-Position Binary Code

## 13. Serial No.

Code N represents the absence of click

NOTE : 1. In case of encoders without bushing, code 7, 8, and 9 are unnecessary.



# ROTARY ENCODER

## Common Specification For Rotary Encoder

### Mechanical Characteristics

Model	Click torque	Shaft push-pull strength	Rotational life 1 cycle : 360°C.C.W. + 360°C.W.
RE111F,RE11LF	30~200gf.cm	10kgf	15,000cycles
RE11RF	30~300gf.cm	10kgf	15,000cycles (1 cycle : 25°~35°C.C.W. +25°~35°C.W.)
RE130F	30~100gf.cm	5.1kgf	15,000cycles
RE160F	50~200gf.cm	8kgf	50,000cycles

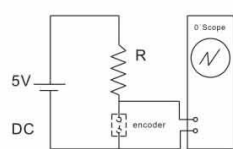
### Electrical Characteristics

Model	Rating	Maximum operating current	Insulation resistance	Voltage proof
RE111F,RE11LF,RE11RF	5V DC 10mA(1mA Min)	10mA	250V DC100MΩ Min	300VAC
RE130F,RE160F	5V DC 0.5mA	5mA	50V DC,10MΩ Min	50VAC

#### SLIDING NOISE

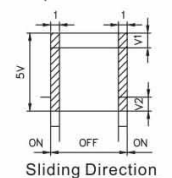
$$V1 = V2 - 1V \text{ Max.}$$

Test Circuit



Test Conditions  
Rotational Speed 360°/sec

Output Waveform

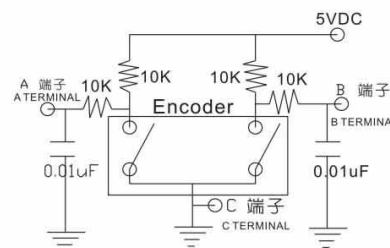


t: Masking time to avoid chattering

R=5KΩ Chattering: 2 Sec Max.

Bounce: 2m Sec Max.

#### SUGGESTED APPLICATION CIRCUIT



### Electrical Characteristics

Model	Switch circuit the number of contact	Switch travel	Switch operating force	Switch rating	Switch operating life
RE111F,RE11LF	S.P.S.T.(Push On)	0.5mm	600 ±300 gf	16V DC 3A (10mA Min)	25,000 cycles
RE11RF	S.P.S.T.(Push On)	0.5mm	200~600gf	16V DC 0.5A (1mA Min)	20,000 cycles
RE130F	S.P.S.T.(Push On)	0.5mm	500±200gf	5V DC 10mA	20,000 cycles

Contact Resistance: 100mΩ (Initial value)  
200mΩ (after the end of useful life is reached)