



RS97 Series

Optical Encoder

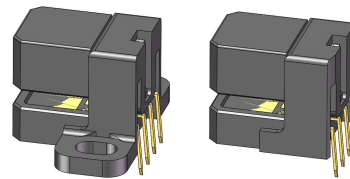
Datasheet

Description

RS97series is a high performance , low cost , optical incremental encoder module. It consists of a highly collimated light source and a detector IC enclosed in a small C-shaped plastic package, matched with a codewheel or codestrip, it provides information of rotary or linear position.

RS97series is designed for use with an 11 mm optical radius codewheel, there are lots of standard CPR options:
100, 200, 256, 360, 400, 500, 512, 600,1000
1024, 2000,2048,2500.

RS97 Series also has linear (LPI) options :
20,45, 90,150,180,300,360.



Features

- Photodetector Array
- -40 °C—85 °C Operating Temperature
- Resolution Up to 2500 CPR
- C-Shape Structure, Easy to Mount
- Two Mounting Options
- Linear and Rotary Options
- No Signal Adjustment Required
- TTL Compatible
- Single 5V Supply

Applications

Typical applications include printers, plotters, copiers, office automation and industrial automation equipment.

Note: Not recommended for use in safety critical application. Eg. ABS braking system.

Absolute Maximum Ratings

Parameter	Symbol	Range
Storage Temperature	T _s	-40 °C — +85 °C
Operating Temperature	T _A	-40 °C — +85 °C
Supply Voltage	V _{cc}	-0.5V — 7V



Soldering Temperature		$\leq 260^{\circ}\text{C}$ ($t \leq 5\text{s}$)
Output Current per Channel	I_o	-1.0mA — 5 mA
Output Voltage	V_o	-0.5V — 7V

Recommended Operating Conditions

Operating Temperature	T_A	-40°C — 85°C
Supply Voltage	V_{CC}	4.5 V — 5.5 V

Electrical Characteristics

Electrical Characteristics over Recommended Operating Range, Typical at 25 °C

Parameter	Symbol	Min.	Typ.	Max.	Units	Condition
Supply Current	I_{CC}	15	20	30	mA	
Detector IC Current	I_R	10	10.5	18	mA	
Low Level Output Voltage	V_{OL}		0.2	0.4	V	2k Ω Pull-up inside
High Level Output Voltage	V_{OH}	2.4	4.5		V	2k Ω Pull-up inside
A/B Rise Time	t_r		160		ns	2k Ω Pull-up inside, $C_L=8\text{PF}$
A/B Fall Time	t_f		20		ns	2k Ω Pull-up inside, $C_L=8\text{PF}$
A/B Duty Ratio	D_t	40	50	60	%	
A/B Phase Difference	θ	45	90	135	$^{\circ}\text{e}$	
Response Frequency	f			500	KHz	

Output Waveform

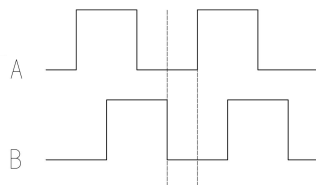


Fig.1 A/B Output Waveform ---Counterclockwise



Tabless Packages Dimensions (Unit: mm)

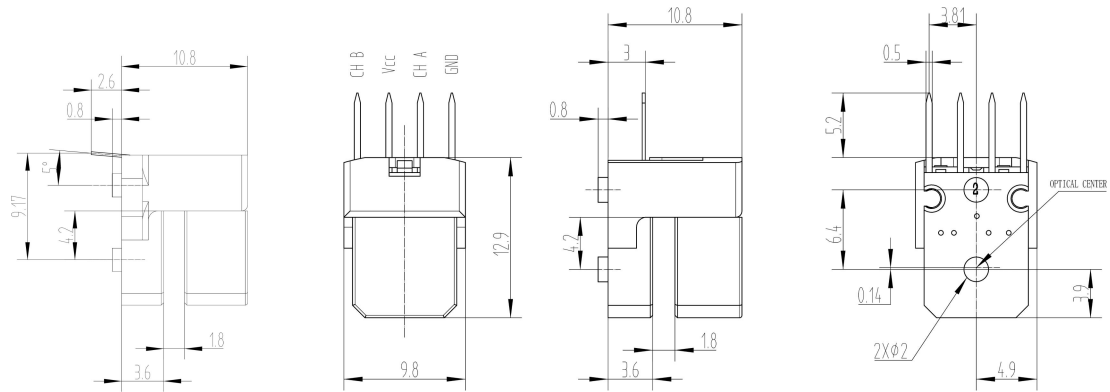


Fig.2 Tabless Option

Standard packages Dimensions (Unit: mm)

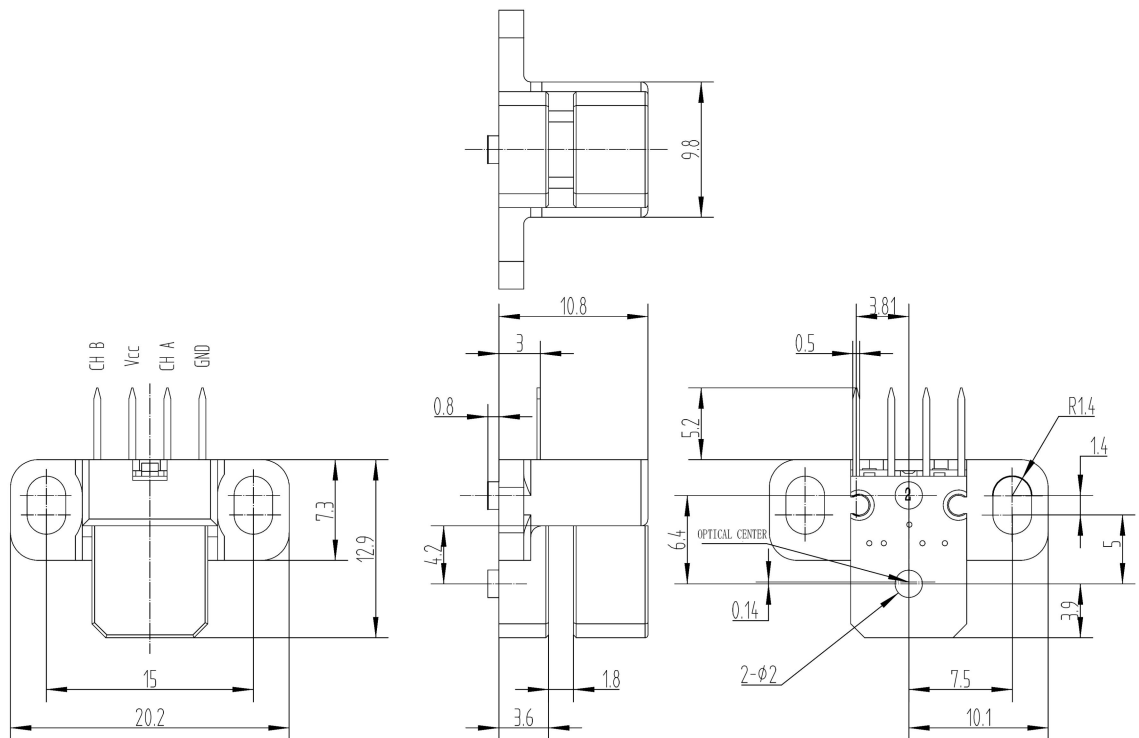


Fig.3 Standard Option

Bent Lead Dimensions (Unit:mm)

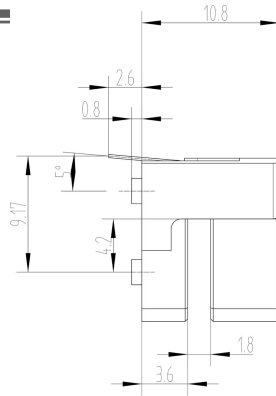


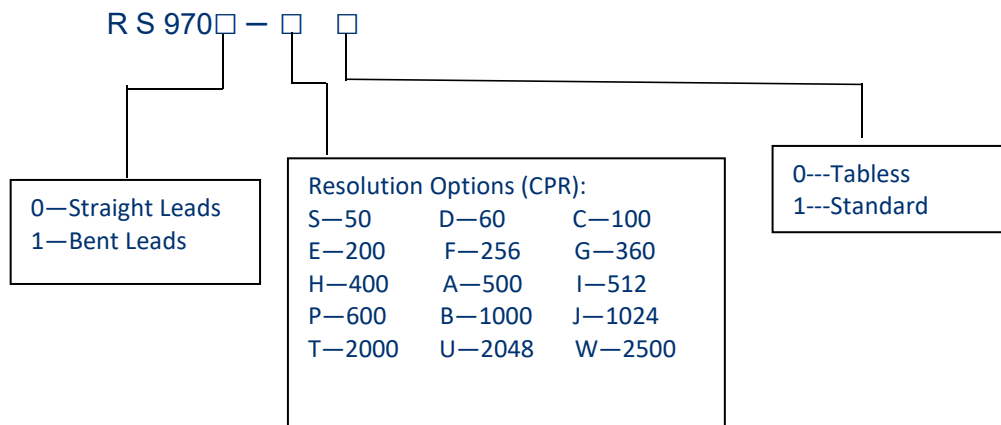
Fig.4 Bent Lead Dimension

Pin Definitions

Pin Name	Function	Input/Output
Vcc	5V	Power Supply
CH A	A Channel output, 2kΩ Pull-up inside	Output
CH B	B Channel output, 2kΩ Pull-up inside	Output
GND	Ground	Power Supply

Ordering Information

RS97 series has different options, below options are designed for ROP=11mm



RS97 series also has linear options.

