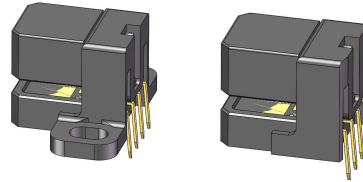


RS970 Series

Optical Encoder

Data Sheet



Description

RS970 series are a high performance optical 2-channel incremental encoder modules.

With an integrated precision encoder phase matrix receiver chip and light source, the module is capable of sensing rotational position and speed information in conjunction with a code disc.

RS970 series has linear (LPI) options: 20, 45, 90, 150, 180, 300, 360.

Features

- Photo-detector Array
- -40 ~ +85 °C Operating Temperature
- Multiple CPR options
- C-Shape Structure, Easy to Mount
- TTL Compatible
- 5V Supply

Applications

Typical applications include printers, plotters, servo motors, factory automation etc.

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

Absolute Maximum Ratings

Parameter	Symbol	Range
Storage Temperature	T_s	-40 ~ +85 °C
Operating Temperature	T_A	-40 ~ +85 °C
Supply Voltage	V_{CC}	-0.5 ~ 7 V
Soldering Temperature		$\leq 260^\circ\text{C}$ ($t \leq 5\text{s}$)
Response Frequency	f	200 KHz
Reverse Voltage	V_r	5V

Recommended Use Environment

Parameter	Symbol	Range
Operating Temperature	T	-40 ~ +85 °C
Power Supply	V _{CC}	Ripple voltage <100mV 4.5V ~ 5.5V

Electrical Characteristics

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

Parameter	Symbol	Min.	Typ.	Max.	Units	Condition
Light Source Forward Voltage	V _f	1.9	2	2.3	V	I _f =20mA
Light Source Wavelength	λ _p	650		660	nm	
Receiver Chip Operating Current	I _{CC}		10	20	mA	
Low Level Output Voltage	V _{OL}		0.2	0.4	V	
High Level Output Voltage	V _{OH}	2.4	4.5		V	
A/B Rising Edge Time	t _r		120		ns	
A/B Falling Edge Time	t _f		20		ns	
AB Duty Cycle	D _t	40	50	60	%	
A/B Phase Difference	θ	60	90	120	°e	

A/B Output Waveform Diagram

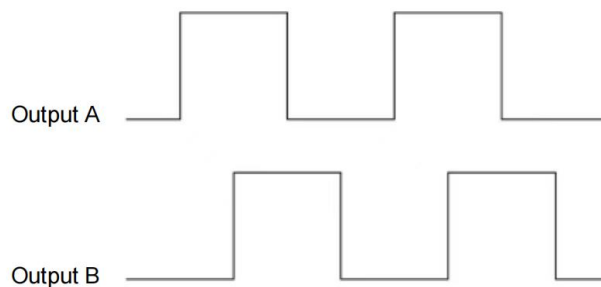


Fig.1 (Top View Module) Counterclockwise Rotation A/B Output Waveforms

Straight Lead Without Mounting Holes Dimensions

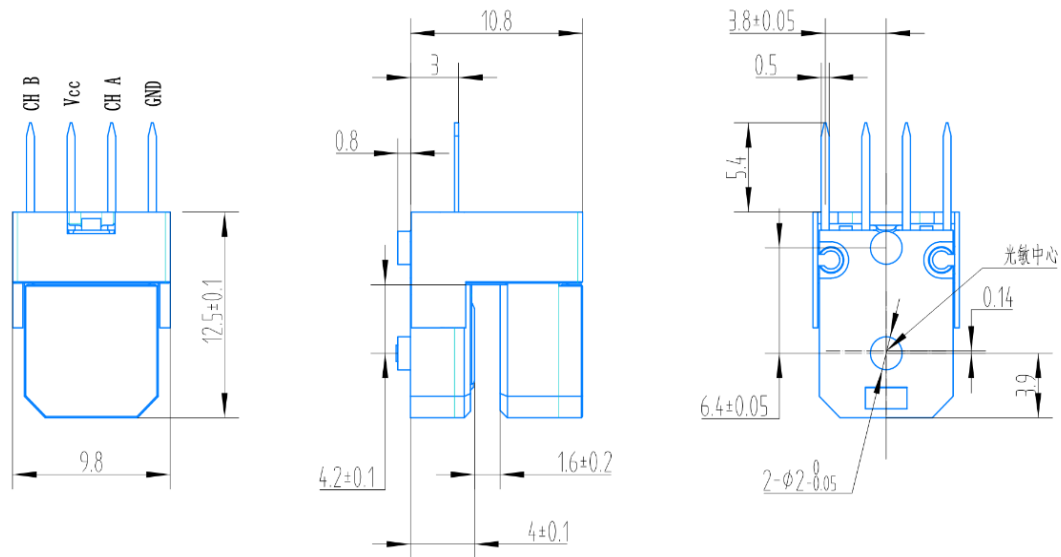


Fig.2 Straight Lead Without Mounting Holes Dimensions

Straight Lead With Mounting Holes Dimensions

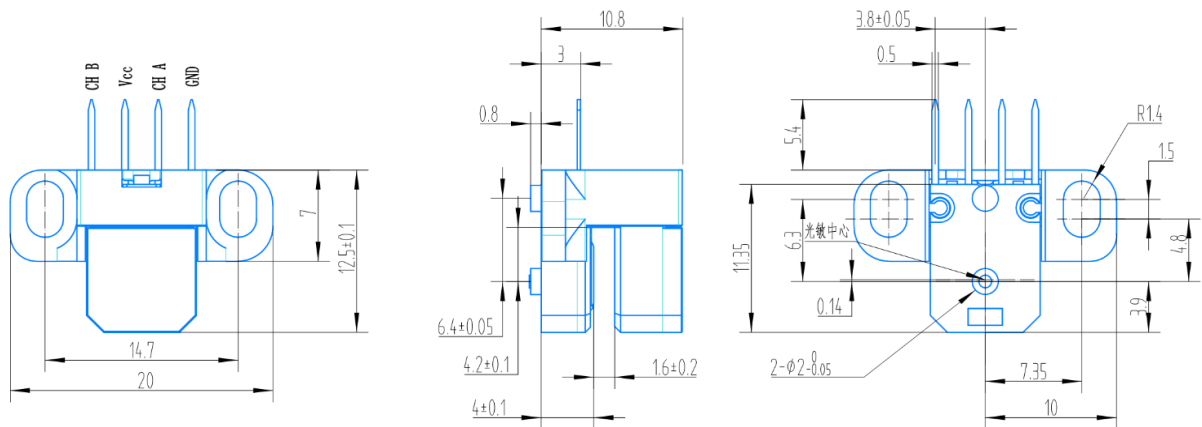


Fig.3 Straight Lead With Mounting Holes Dimensions

Bent Lead Dimensions

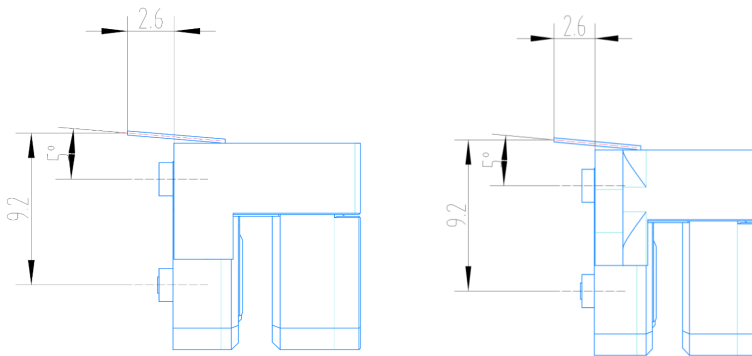


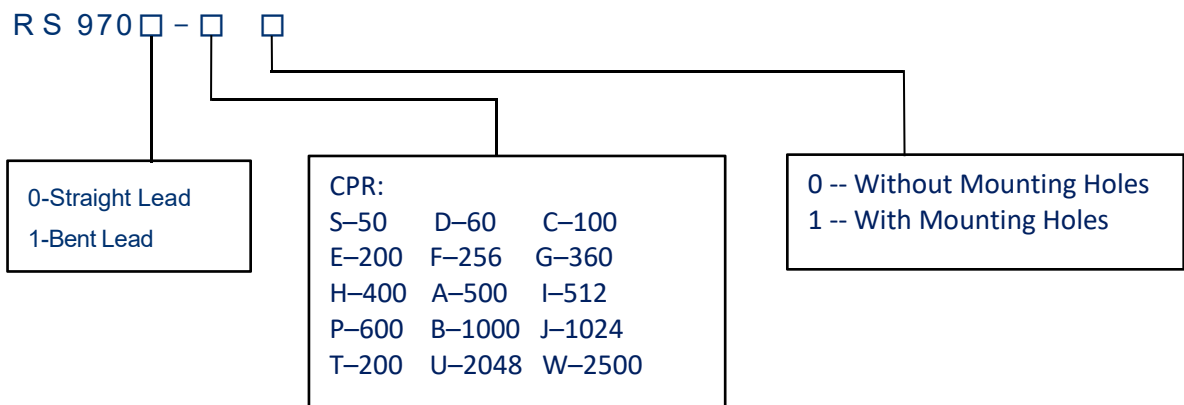
Fig.4 Bent Lead Dimension

Pin Definition

Pin Name	Function	Input/Output
Vcc	Power Supply + 5V	Power Supply
CH A	A Channel output	Output
CH B	B Channel output	Output
Gnd	Ground	Ground

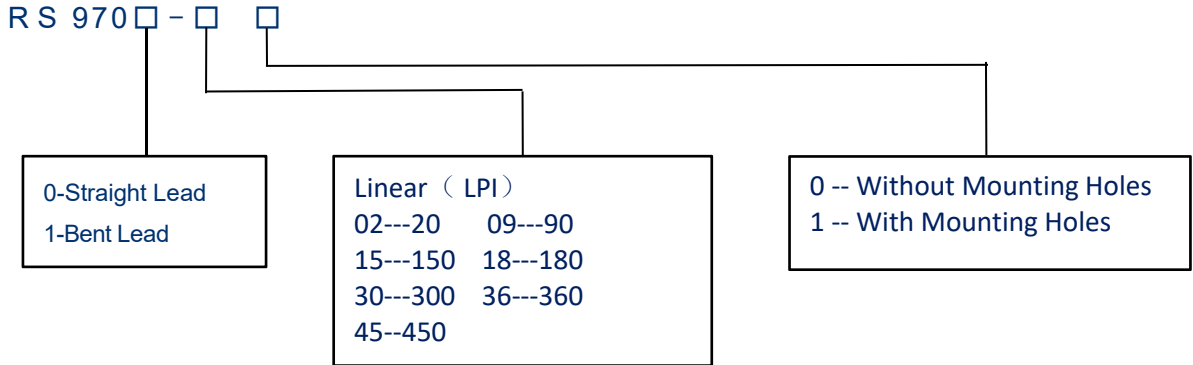
Ordering Information

RS970 series is available in a variety of options, and the specific CPR selection is as follows, based on the optical radius (ROP) = 11mm.



Ordering Information

RS970 series linear type by LPI options are as follows.



Module Printing

