

JHS30B Optical Kit Encoder

A, B Channel Quadrature TTL Outputs with Index



Features

- Two channel quadrature TTL compatible outputs with index channel
- Optional output type (both of voltage and line driver)
- 50 ~ 1024 cycles per resolution (CPR)
- Widely operating environment temperature from -40 °C ~85°C
- Intelligent mounting design
- Compact size appearance
- Cost effectively
- Single 5V DC supply
- RoJHS compatible

Description

THE SENSOR - JHS series of Kit Encoder JHS30A JHS30B JHS56 all composed of the high intelligent device solution to the base and cover mounting, disc design, push-on-hub and the optional output including with voltage and line driver, comprising three channel A / B / Index complimentary in accordance with any standard to customized appliance respectively.

THE SENSOR endeavored to invent and develop the disc supplying the mostly trend toward market needs through possessing superior disc technology. Regarding to the base and cover offered are both manufactured from our own mold, injection facility constructing of the polyethylene capable to execute the protection operation against the outside impact.

The peculiar design of the slider which was included the aligning pins at side of the base enabled the aligning holes of sensor to fit directly without the extra alignment for the sensor position adjustment.

The intelligent patent mounting ensure JHS series to reach at the more capability technology no matter to assemble or to disassemble the module for the disc replacement. The attached module on the side of the base plate advances the high flexible adjustment during the disc placement in the highlight security condition method. Users would be able to install the disc at the spacious environment as well as the attached module which has been prior to fix by the aligning pins simultaneously.

The optional output signal method would be available for the customized selection in either voltage or line driver. THE SENSOR also attentive to affix the output connection cable to meet your functional needs in advanced.

THE SENSOR emphasize on the constantly development of the prominent disc performances as well as the patent invention, featured the high temperature resistant disc and easy push-on-hub functional accordingly. We utilized the diversity resolution from 50 to 1024 CPR in addition to our technical manufacturing chip disc center offering the reliable quality to be with you.

Electrical

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Electrical Characteristics

Parameter	Min.	Typ.	Max.	Units
Storage Temperature	- 40		85	°C
Operating Temperature	- 40		85	°C
Supply Voltage	4.5	5.0	5.5	V
Supply Current	30	57	85	mA
Output Voltage	- 0.5		Vcc	V
Output Current Per Channel	- 1.0		5.0	mA
High Level Output Voltage	2.4			V
High Level Output Current	- 0.2			mA
Low Level Output Voltage			0.4	V
Low Level Output Current			3.86	mA
Count Frequency			100	kHz
Load Capacitance			100	pF
* Typ. value measured subject to Vcc = 0.5V and Temperature 25 °C. Cycle Error		ΔC	3 5.5	°e

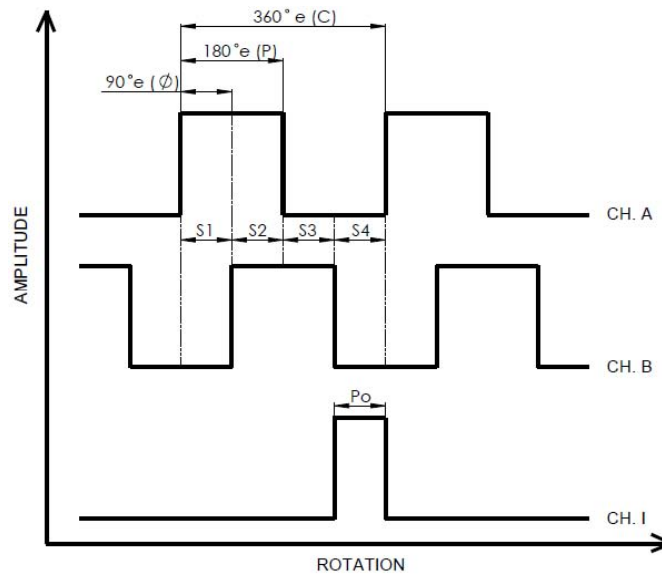
Encoding Characteristics

Parameter	Sym.	Min.	Typ.	Max.	Units
Storage Temperature		- 40		85	°C
Operating Temperature		- 40		85	°C
Supply Voltage		4.5	5.0	5.5	V
Supply Current		30	57	85	mA
Output Voltage		- 0.5		Vcc	V
Output Current Per Channel		- 1.0		5.0	mA

Output Waveform

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Count (N): The total amount of the count (bar and window) as a pair among per rotation.

Cycle (C): it indicates the fully one cycle of the electrical degrees measured as 360 °e degree.

Cycle Error (ΔC): The deviation in the electrical degree among the pulse width against its ideal value. It's the symbol of the uniform cycle.

Pulse Width (P): Normally it refers to the "HIGH" number of electrical of the output during the one cycle.

Pulse Width Error (ΔP): The deviation in the electrical degree among the pulse width against its ideal value about 180 °e degree.

State Width (S): The number of electrical degree between Channel A and Channel B as a result of the transition in the output state. There are 4 states per cycle from the output of Channel A and Channel B. For each states nominated at 90 °e (S1-S4).

State Width Error(ΔS): The deviation in electrical degree among each of states width upon the ideal 90 °e.

Index Pulse Width (Po): The high symbol of number of electrical degree around the one fully rotation.

Phase (ϕ): The number of electrical degrees between the centre of the high state on channel A and the centre of the high state on channel B. This value is nominally 90 °e (the signals A and B can be used for quadrature

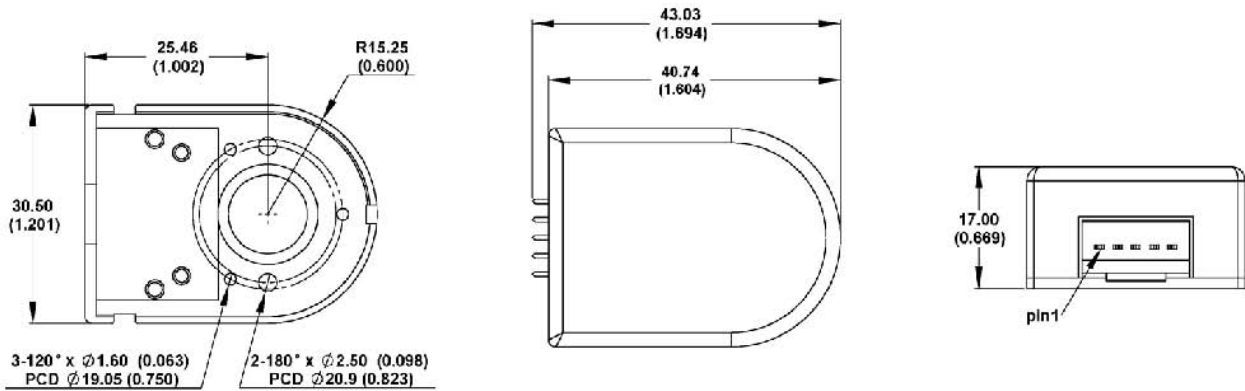
Phase Error ($\Delta \phi$): The deviation in electrical degrees of the phase from its ideal value of 90 °e.

Mechanical Specification

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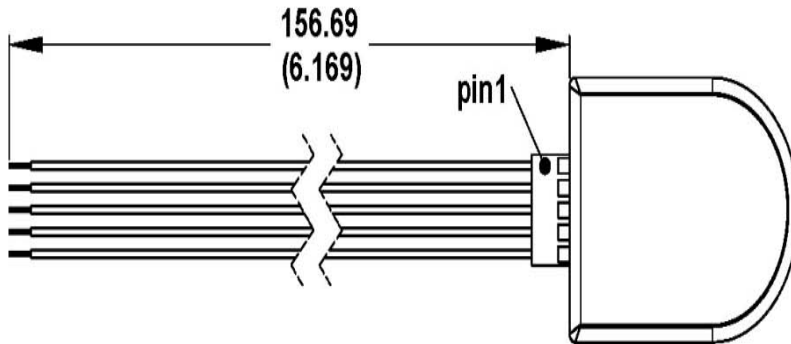
Package Dimensions



Top View (base plate only) Top View Side View

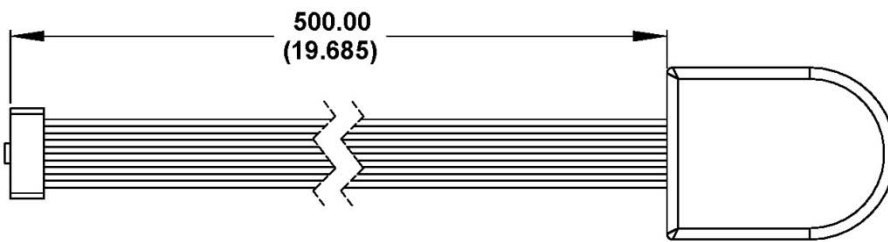
Note: Dimensions in millimeters (inches)

Pin-out Description Voltage (5 pin)



Pin	Color	Description
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1 black Ground 2 yellow Index 3 white Channel A 4 red DC +5V 5 green Channel B

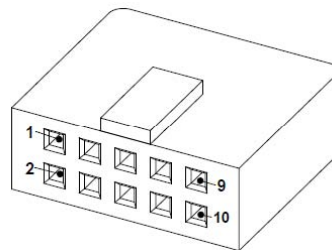


Pin	Description
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1 N.C. 2 DC +5V 3 Ground

Line driver (10 pin)

Cable: 10 conductor ribbon cable
Connector: 10 position IDC connector



5 Channel A6 Channel A+ 7 Channel B8 Channel B+ 9 Index

4 N.C.

Line driver

10 Index+

Note: Dimensions in millimeters (inches)

Mechanical Characteristics

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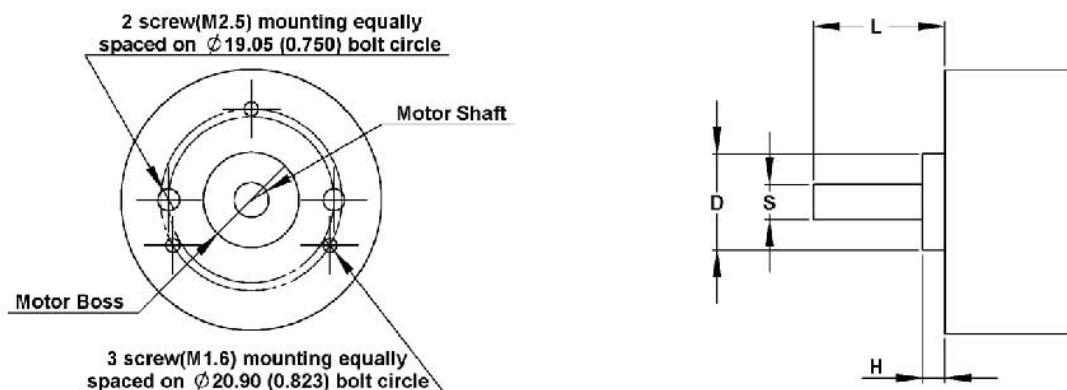
A, B Channel Quadrature TTL Outputs with Index

Parameter	Sym.	Value	Tolerance	Units	
Storage Temperature		- 40	85	°C	
Operating Temperature		- 40	85	°C	
Supply Voltage		4.5	5.0	5.5	V
Supply Current		30	57	85	mA
Output Voltage		- 0.5	V _{cc}		V
Output Current Per Channel		- 1.0	5.0		mA
High Level Output Voltage		2.4			V
High Level Output Current		- 0.2			mA
Low Level Output Voltage			0.4		V
Low Level Output Current			3.86		mA
Count Frequency			100		kHz
Load Capacitance			100		pF
Cycle Error	ΔC		3	5.5	°e
Pulse Width Error	ΔP		7	30	°e
State Width Error	ΔS		5	30	°e
Phase Error	$\Delta \phi$		2	15	°e
Index Pulse Width	P _o		90	120	°e
43.03 x 30.5 x 17.00 Dimension					mm (in.)

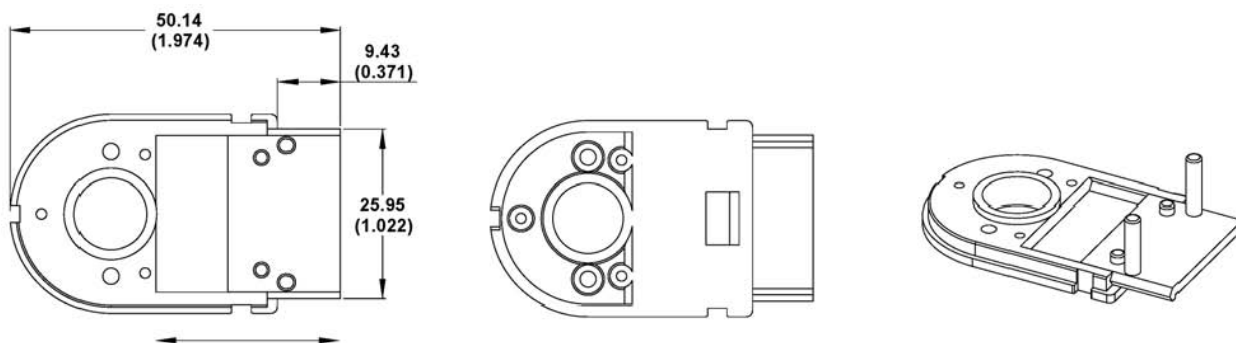
Mounting Considerations

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Mounting Holes Side View (Motor)



Base Plate with Slider (to draw out the slider precede to install encoder disc)

Note: Dimensions in millimeters (inches)

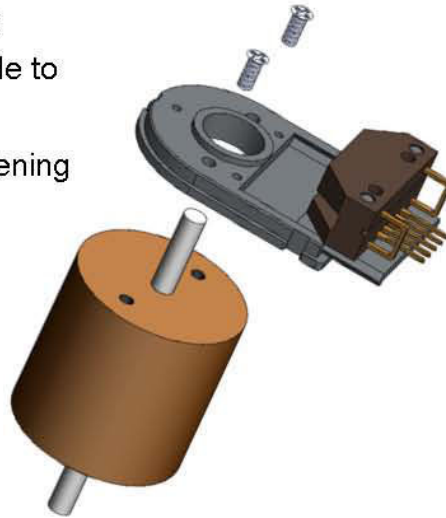
Assembly Instruction

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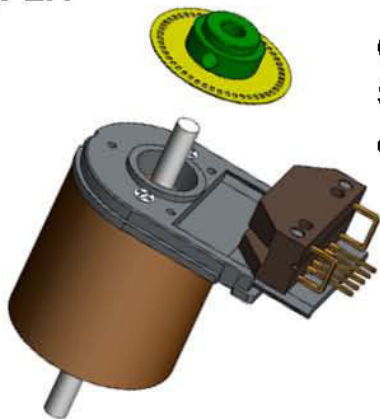
Step 1. Base Mounting:

To draw out the slider precede to install encoder disc firstly.
Then, to fix the base by tightening with two screws properly.



Step 2. Disc Installation: (Option A: Aluminum hub, Option P: Push-on-hub)

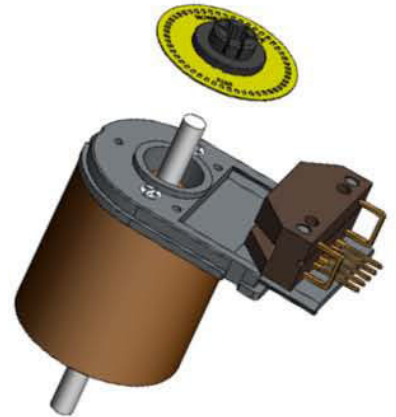
Step 2.1



Aluminum hub

Option A:

Slip the aluminum hubdisc on the shaft of motor.

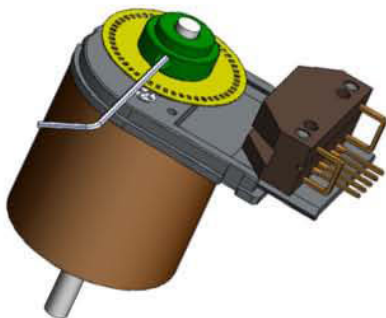


Push-on-hub

Option P:

Slip the push-on-hubdisc on the shaft of motor.

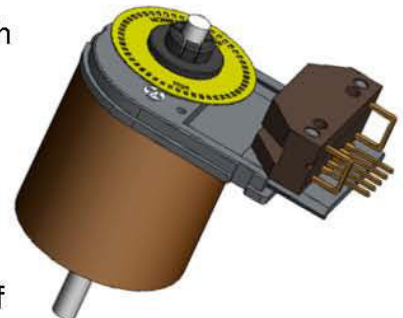
Step 2.2



Aluminum hub

Option A:

Tighten screw with the hex wrench after pressing down the hub. In the mean time to adjust the proper gap of hub position.



Push-on-hub

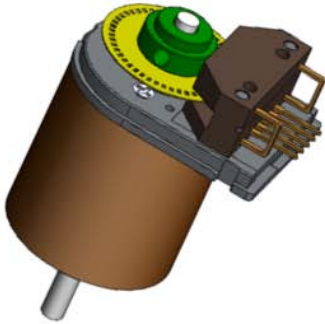
Option P:

To ensure the proper gap of hub position by the manual adjustment.

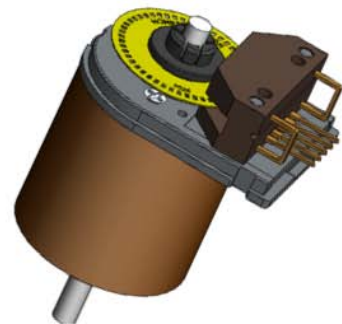
Step 3. Module Installation: Slip the slider into the optical module until the bottom reached.

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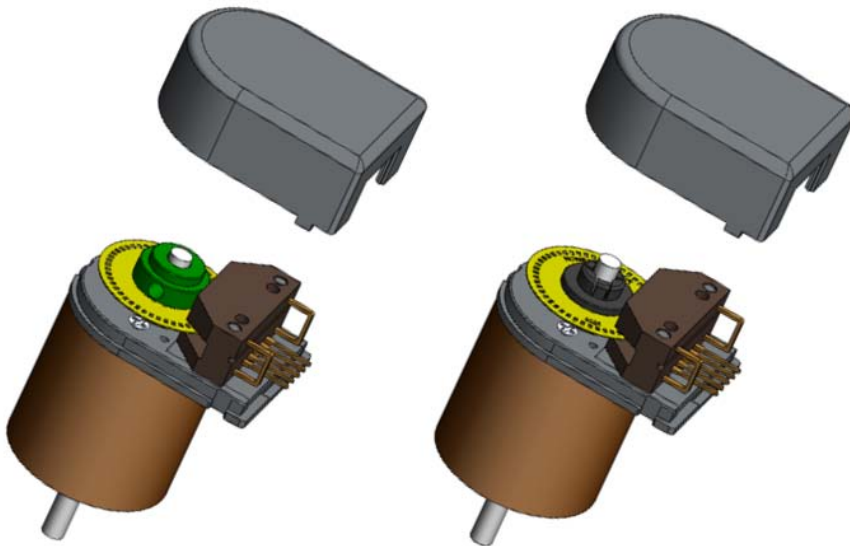


Aluminum hub



Push-on-hub

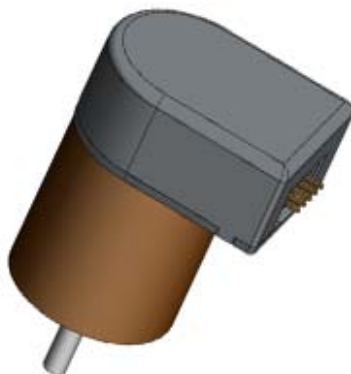
Step 4. Cover Mounting: Place and press the cover down the module with a snap.



Aluminum hub

Push-on-hub

Step5. Completion: The encoder is available for use.



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Ordering Information

HS30B -	<input type="text"/>	C -	<input type="text"/>	<input type="text"/>	-	<input type="text"/>
	Resolution		Shaft Diameter			Output
	50: 50 CPR		4: 4mm		A: aluminum	V: voltage
	100: 100 CPR		5: 5mm		P: plastic (push-on-hub)	L: line driver
	200: 200 CPR		6: 6mm			
	256: 256 CPR		6.35: 6.35mm (1/4")			
	360: 360 CPR		8: 8mm			
	400: 400 CPR					
	500: 500 CPR					
	512: 512 CPR					
	1000: 1000 CPR					
	1024: 1024 CPR					