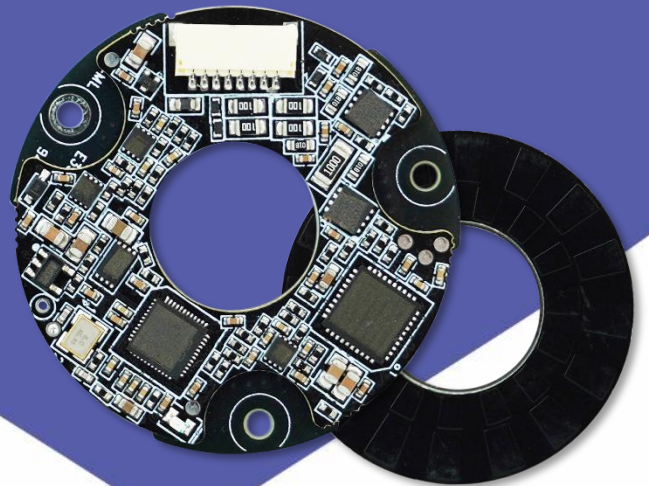


Hollow-shaft Single-turn Absolute Rotary Encoder

KIN38-17BS20-SEC0V5
KIN38-17SI00-SEC0V5
KIN38-17ST00-SEC0V5
SPECIFICATION

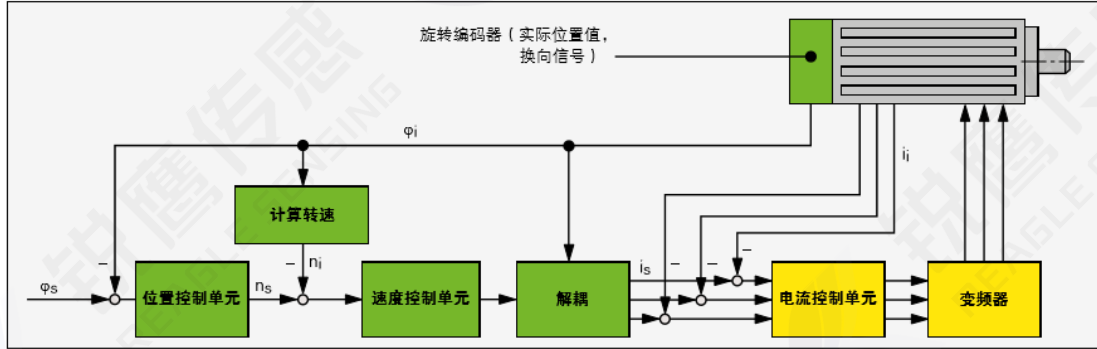


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1. Summary Info

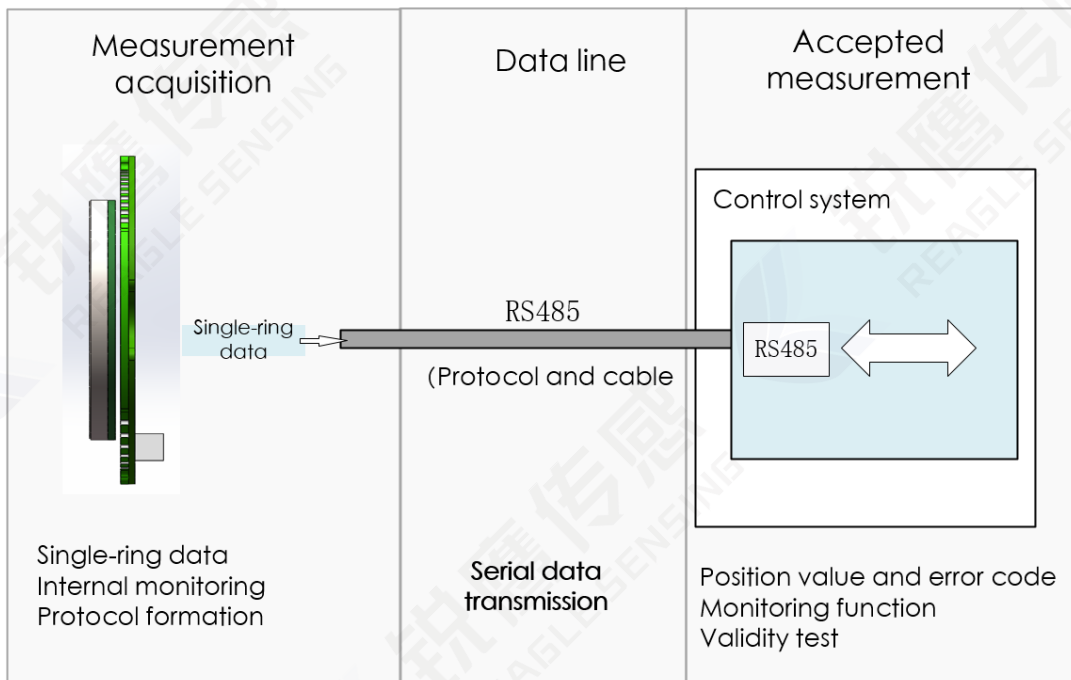
This manual primarily describes how to use the hollow inductor series KIN38 single-turn encoder from Reagle Sensing. This product is mainly used in servo-driven control systems, providing the feedback information required for accurate position and speed control units.

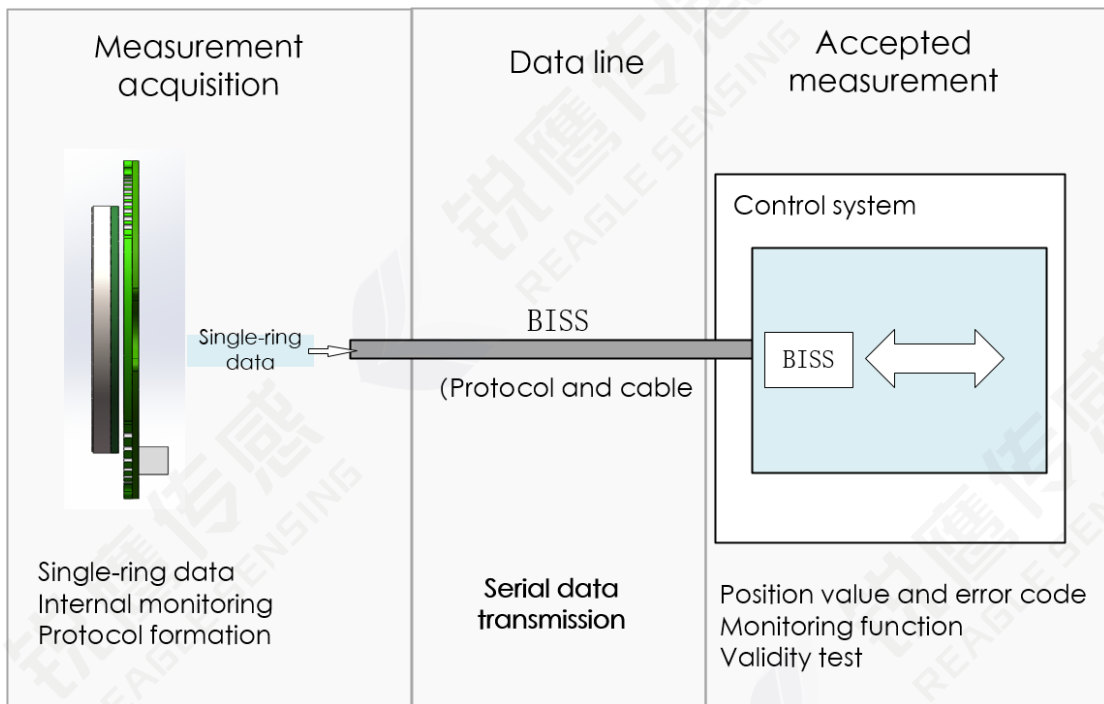
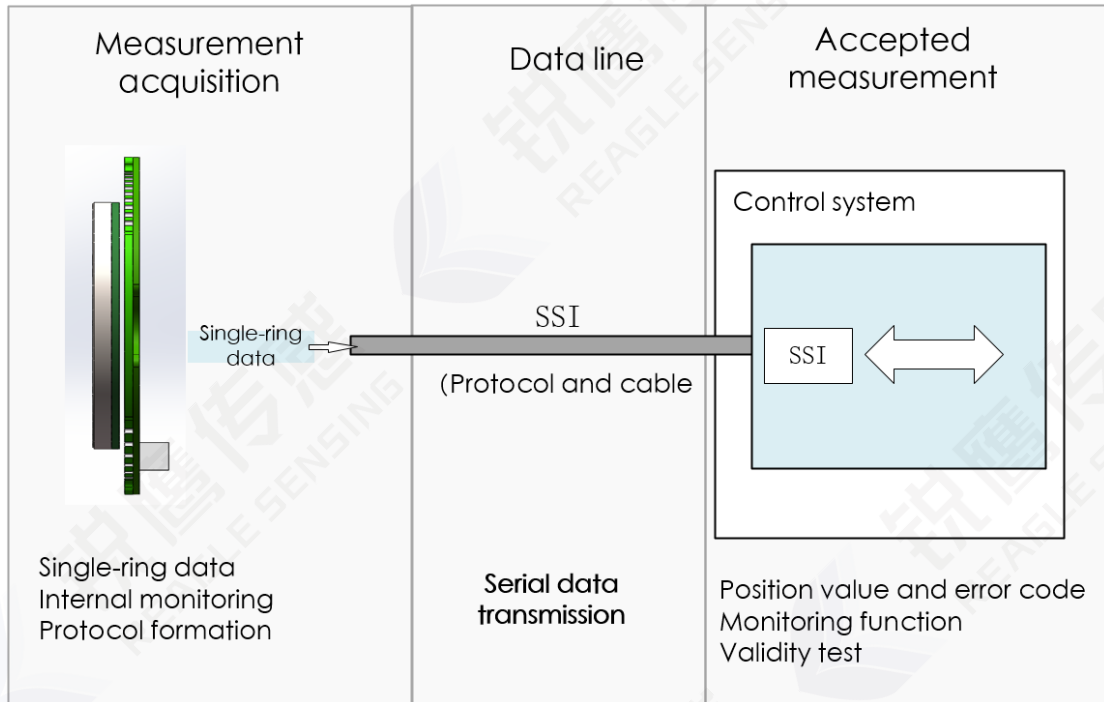


Position and velocity control system

The performance of the encoder has a decisive impact on the essential characteristics of the motor, such as:

- Positioning accuracy
- Speed stability
- Bandwidth, determining the response speed to drive command signals and resistance to interference
- Motor size
- Noise





2. Technical Specifications

Product model	Stator Model: KIN38-17BS20-SEC0V5 KIN38-17SI00-SEC0V5 KIN38-17ST00-SEC0V5 Rotor Model: KIN38-12.7SR	
Resolution	17bit	
Auxiliary Functions	Fault Warning * Electromagnetic Environment Warning	
Communication Interface	RS485, SSI, BISS	
Communication frequency	≤16K	
Baud rate	RS485: 2.5Mbps; SSI: 2.5Mbps; BISS: 1 Mbps~10Mbps;	
Input shaft allowable deviation	Axial: ±0.2mm Radial: ±0.1mm	Axial Play: < ±0.03mm
Main shaft speed	≤6000rpm	
Vibration	Between 10 and 55Hz, maintain amplitude of 1.5mm. Between 55 and 2000Hz, acceleration is 98m/s ² . 2 hours per axis for XYZ, totaling 6 hours.	
Mechanical shock	Shock acceleration of 980m/s ² , 11 milliseconds. 3 impacts per direction, totaling 18 impacts.	
Operating Temperature	-40°C~85°C	
Relative Humidity	≤ 90% (40 °C/21 days, based on EN 60068-2-78); No condensation	
Enclosure Protection Rating	— (Motor Rear Case Protection)	

3. Electrical Parameters

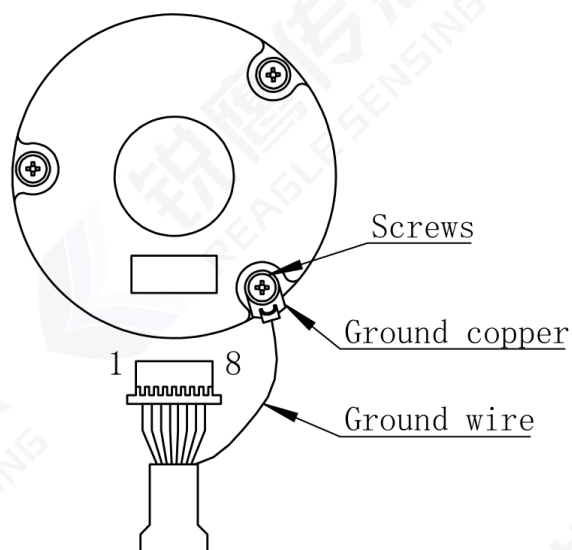
Items	T=25°C		
	Min.	Typ.	Max.
Supply Voltage	4.75V	5V	5.25V
Main power supply Current (Typ)		160mA	
Differential Level	High	3.5V	--
	Low	--	1.7V
Edge Transition Time		--	100ns
Insulation Resistance		--	--

4. Cable Definition



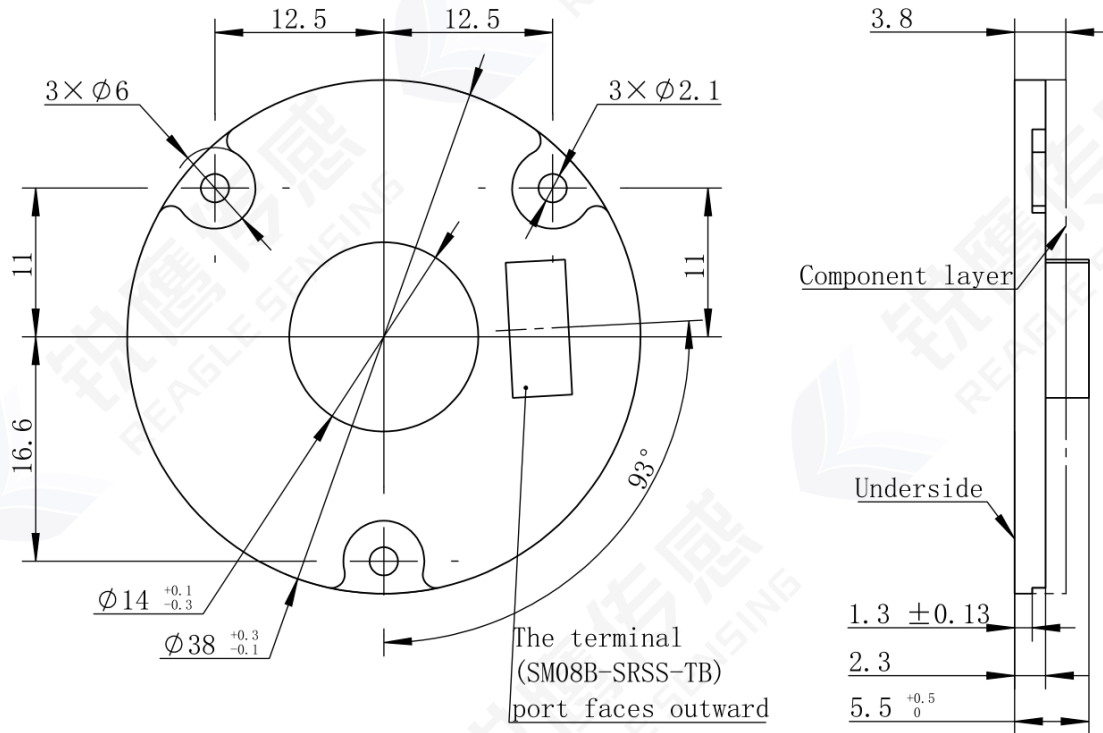
Terminal Numbering	1	2	3	4	5	6	7	8
RS485 Definition	5V	GND	NC	NC	485+	485-	NC	NC
SSI Definition	5V	GND	DATA+	DATA-	CLK+	CLK-	NC	NC
BISS Definition	5V	GND	DATA+	DATA-	CLK+	CLK-	NC	NC

[Note]: PE Wire Installation Diagram

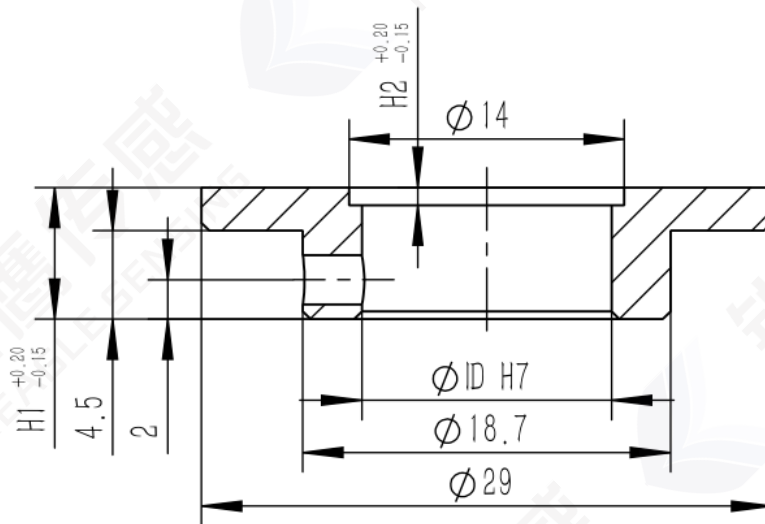


5. Mechanical Specifications

◇ Stator Structure Dimension Diagram



◇ Rotor Structure Dimension Diagram

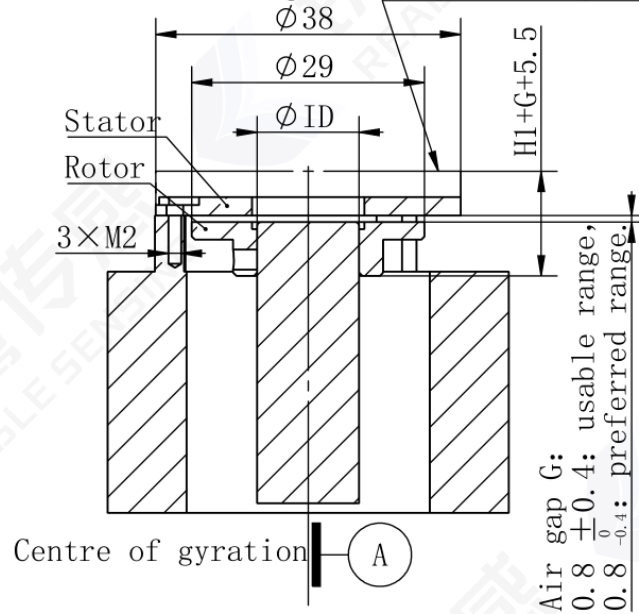


Rotor type	ID (mm)	H1 (mm)	H2 (mm)
KIN38-12.7SR	12.7	6.7	0.9

◇ Stator-Rotor Installation Position Requirements

Relative position of stator and rotor:

Radial mounting: Component top layer



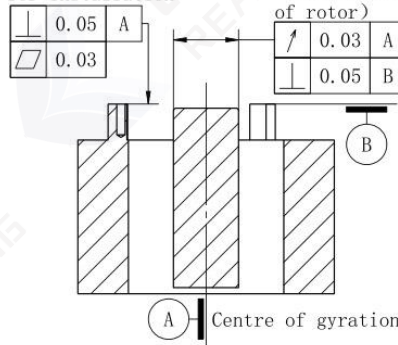
H1 see the rotor dimension diagram.

◇ Recommended Installation Platform

Radial mounting type:

Three columns
for installation

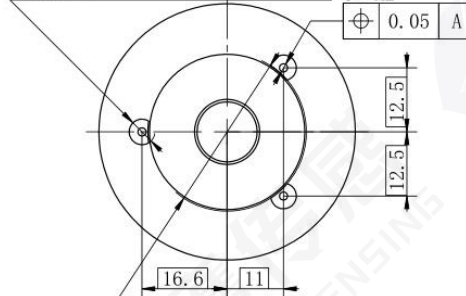
Ø ID h7
(Inside diameter
of rotor)



Three columns for installation

≤ Ø5mm

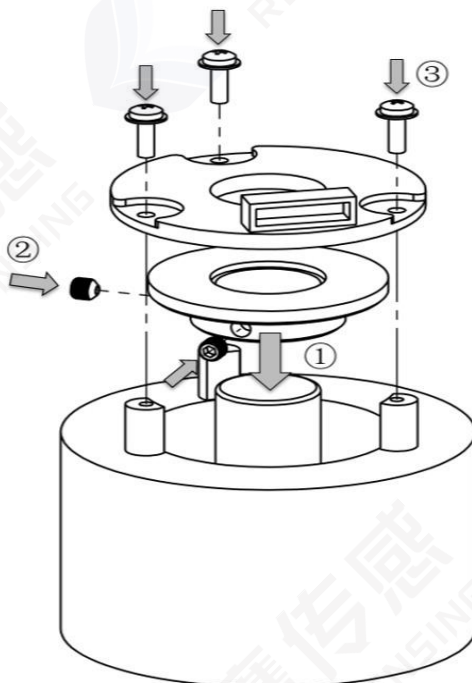
3 × M2
0.05 A



The diameter (≥ Ø30.9mm) of
the inner circle of the column

6. Communication Specifications

6.1 Installation diagram

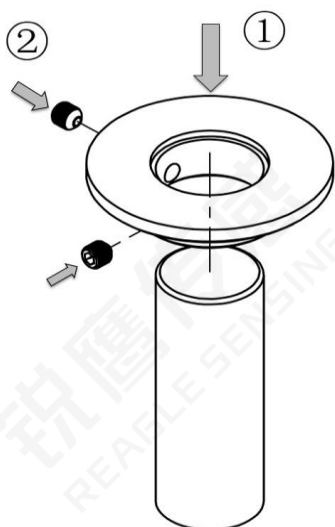


Radial Rotor Complete Installation Diagram

6.2 Installation Accessories

- Phillips torque screwdriver
- Metric 1.5mm hexagonal torque wrench
- 3-M2×5.5 Phillips pan head screws + flat washer combination
- 2-M3×3 hex socket set screws

6.3 Installation Sequence

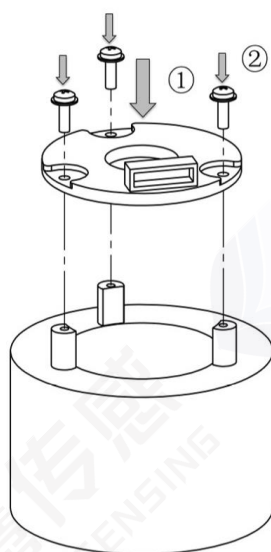


Radial Rotor Installation :

- Fit the encoder rotor onto the motor shaft to the appropriate position;
- Use the hexagonal torque wrench to sequentially screw in two M3×3 hex socket set screws.

[Note]:

- If rotor height adjustment is necessary, lock it after adjustments;
- To prevent screw loosening, you can apply thread locker to the threaded holes, or use screws pre-coated with thread locker. Recommended screw locking torque is 7 ± 0.2 kgf·cm.



Stator Installation :

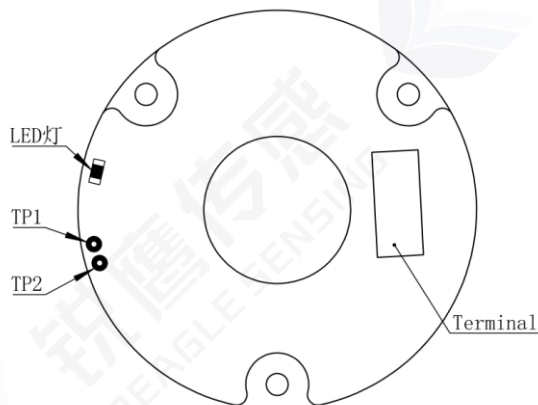
- Place the encoder stator on the stator mounting surface, aligning the screw holes at four positions;
- Use the Phillips torque screwdriver to sequentially screw in three screw assemblies (M2×5.5 Phillips pan head screws + flat washer combination).

[Note]:

To prevent screw loosening, you can apply thread locker to the threaded holes, or use screws pre-coated with thread locker. Recommended screw locking torque is 2.8 ± 0.2 kgf·cm.

7. Calibration Methods

7.1 Calibration Operation



- ① Power the encoder normally;
- ② Short TP1 and TP2, maintain the short for 1 second before releasing. After this, the green light will start flashing at a frequency of 8 times per second;
- ③ While the green light is flashing (within 1 minute), rotate the rotor in the same direction for more than 2.5 turns. If the indicator light remains on, it indicates that the calibration was successful.

7.2 Indicator Light Status Explanation

Status	Indicator Light Display	Status Explanation
Power On	Flash once then off	Indicating power-on initialization
Normal Operation	Off	Indicating initialization is complete after power-on, and there are no alarms
Offline Calibration in Progress	Flashing 8 times per second	Indicating calibration is underway, and there are no alarms
Offline Calibration Failure	Flashing once per second	Indicating offline calibration has failed
Offline Calibration Success	Steady on	Indicating offline calibration has failed

8. Communication Specifications

Table 1: TAMA Protocol Parameters

1	Single-turn position resolution	131072 (17bit, ENID = 0x11)
2	Multi-turn position resolution	No Multi-turn
3	Overspeed alarm threshold	7200rpm

The specific content of the “Reagle Communication Protocol Specification (TAMA-STD) [Public].” can be found in the document itself.

Table 2: SSI Protocol Parameters

1	Single-turn position resolution	131072 (17bit, ENID = 0x11)
2	Multi-turn position resolution	No Multi-turn
3	Overspeed alarm threshold	7200rpm

The specific content of the “Reagle Communication Protocol Specification (SSI) [Public].” can be found in the document itself.

Table 3: BISS Protocol Parameters

1	Single-turn position resolution	131072 (17bit, ENID = 0x11)
2	Multi-turn position resolution	No Multi-turn
3	Overspeed alarm threshold upper limit	7200rpm

The specific content of the “Reagle Communication Protocol Specification (BiSS-C) [Public].” can be found in the document itself.

9. Configuration Instructions

For ordering codes, refer to "Reagle Sensing KIN Series Encoder Ordering Instructions."

For recommended terminal cable specifications, refer to "Reagle Sensing Hollow Inductor SM08B-SRSS-TB Recommended Terminal Cable Drawing."

Optional Configurations	Explanation
Communication Protocols	TAMA/SSI/BISS

Revision History

Date	Version Number	Modification Details or Changes	
		Location	Content
20230403	V1.0	/	New Version
20230506	V1.1	Cable Definition	Modified 485 interface definition
20230628	V1.2	Electrical Parameters Mechanical Specifications Calibration Methods	<ul style="list-style-type: none"> Added supply current consumption parameter Modified screw hole dimensions, terminal positions Modified calibration points, LED positions
20230828	V1.3	Technical Specifications Mechanical Specifications	<ul style="list-style-type: none"> Updated BISS baud rate range Updated component layer information and some external tolerances Removed information related to "axial clamp ring installation" of the rotor
20231025	V1.4	Cable Definition	Added new copper nose-style cable installation instructions

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