




# ANANDA S15 Torque Sensor User Manual

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## **ANANDA S15 Torque Sensor User Manual**



### **Preface**

This document specifies the technical specifications for the product listed.

This document specifies the requirements on functions, conditions of use, reliability, materials and etc. of the product listed.

The Product is designed and produced for the markets in the EU, the U. S., and China.

If the Product is to be sold to a country or region other than that, additional approval might be required to ensure the compliance with local regulations and the limits of any intellectual property rights.

### **Applicable models include:**

Torque sensor S15

### **Special notes:**

Any change made to the Technical Specifications must be subject to the ANANDA procedure for document modification as well as re-confirmation by the signatories and approval of the customer.

The clarification and explanation for any clauses herein shall be subject to the instructions of the technical lead of the project.

### **Revision history:**

Version	Doc. No./ Content of revision	Revised by	Date
01	Adding of packaging information and revision of electrical definitions of interfaces	Zhu Huixiang	2022/09/08
02	Modification of the technical parameter list according to the meeting minutes	Zhu Huixiang	2022/09/22
03	Adding of tooth profile parameters of the matching crankset	Zhu Huixiang	2022/ 10/09
04	Update of technical parameters, optimization of left and right axle cups, and adding of installation instructions	Zhu Huixiang	2022/ 10/24
05	Modification of electrical definitions	Zhu Huixiang	2022/ 11/22
06	Adding of electrical definitions and revision of the parameter list	Zhu Huixiang	2023/02/28
07	Template modification	Zhu Huixiang	2023/08/10
08	Modify standard, Add Double signal parameter, Add Outline dimension ,Correct storage and use temperature	Zhu Huixiang	2023/09/22

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired

## General

- ScopeThe Specification specifies the detailed requirements for functions and materials of the S1 5 torque sensor and provides some other information. All technical requirements specified herein are subject to verification in predefined procedures. The number of samples for testing shall be sufficient to verify the long-term compliance of the product with the Technical Specification.
- Product functions and applicationsThis product is a power sensor for an electric bicycle, integrating torque and speed measurement. Scope of application: This sensor is used to measure the torque and speed of bicycles and electric vehicles.
- Normative references

1. EN15194: 2017 *Cycles – Electrically power assisted cycles – EPAC bicycle*
2. ISO 4210 2014 *Cycles – Safety requirements for bicycles*
3. GB 17761-2018 *Safety technical specification for electric bicycle(China)*
4. GB/T 17-2008 *Environmental testing for electric and electronic product(China)*

2	Product definitions
2. 1	Product features
a.	High precision and linearity;
b.	No signal drift
c.	Fast dynamic response;
d.	Maintenance- free, high interchangeability;
e.	Small size (standard bottom bracket);
f.	Non-contact, long service life, insensitive to bending and axial motion;
g.	Low power consumption, long-term stability;
h.	Adjustable assembly size and input/output signal.

Technical parameter requirements

<b>Product Specification</b>	
<b>Item</b>	<b>BBTS 1. 1 Central Axle Torque Sensor</b>
Input voltage	4.5~5. 1V
Power input	<0.22W
Torque output analog voltage	0.75~3.34V
Number of speed signal pulses	24r
Duty cycle of speed signal	50%
Slope of sensor signal	25mV/N ·m
Measurement range	0~ 100N.m
Design standard	EN14764
Headset thread gauge	BS(C) 1.375X24
Measurement type	Static and dynamic
Crankset specification	General bicycle standard
Protection class	IP66
Salt spray tset	96H
Operating temperature	-20~55°C
Storage temperature	-20~ 60°C

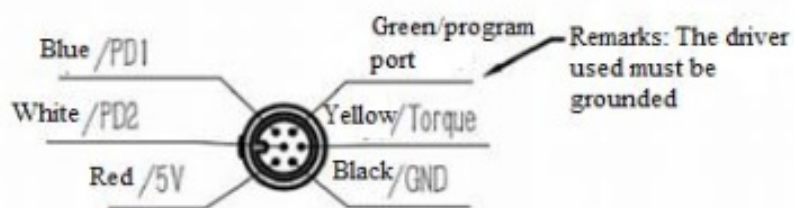
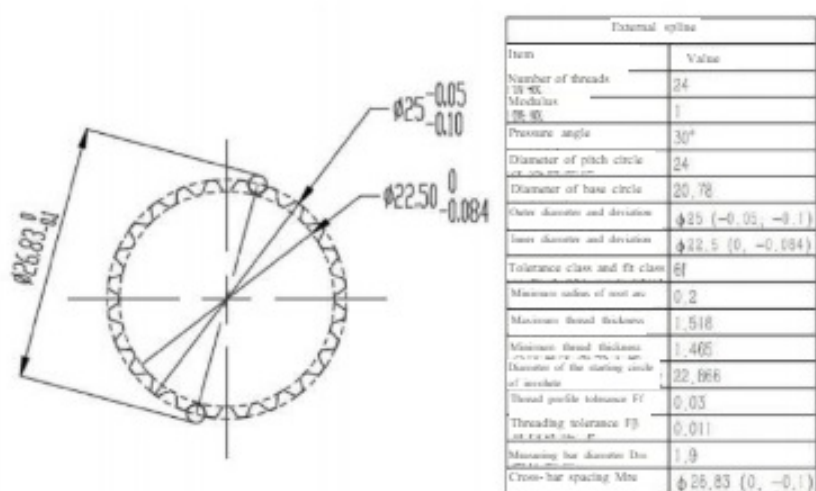
## Speed signal

Power on the central axle torque sensor properly, connect its speed signal wire to the probe of an oscilloscope, and turn the central axle torque sensor by one revolution. The oscilloscope can detect 24 sets of square pulse waves in the signal output of the central axle torque sensor.



Specification	L2	L3	L4	L5
L1= 151mm	41.5mm	68mm	41.5mm	45.5mm
L1= 151mm	39mm	73mm	39mm	45.5mm
L1= 165mm	40.5mm	84mm	40.5mm	53.5mm
L1= 181mm	40.5mm	100mm	40.5mm	61.5mm

## .Threads and parameters of crankset installation



2.7 Remark:



EP64000xx----- Material code of customer;  
1220100008-----Material code of Ananda;  
S15YYWWXXXX---S15: Type

YY Year WW Week XXXX SN



## Packaging requirements

### 1. Size of packaging box



L =508mm W=380mm H= 182mm

Quantity: Specification: S15

Specification: S15

Specification: S15

L1= 151

L1= 165

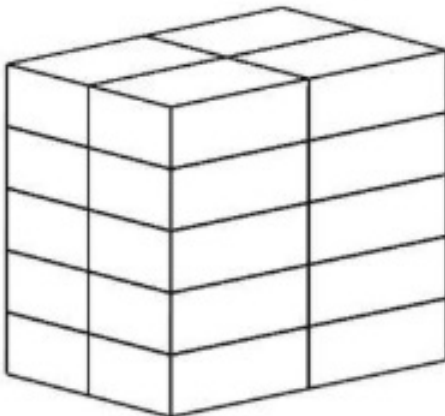
L1= 181

per box per box per box

42pcs 42pcs 30pcs

**Note: Components and parts can be packaged separately.**

Each carton should be marked with info on: logistics, product, quantity and model; Products are shipped with pallets. The stacking height and number of products on each pallet shall meet the order The length, width and height of each pallet are limited to 1,200mm × 800mm × 1,100mm.





1. Packaging materials shall be green, energy- efficient and

## Instructions for Use

3. 1 External conditions:

Excessive mechanical stress ( e. g. longitudinal force/ load exceeding the specified limit, and intense vibration) may cause damage to the sensor and result in poor signal output.

- Safety measures

1. Do not remove the sensor housing under any
2. Note the maximum electrical and mechanical load requirements in sensor
3. Protect the sensor from exposure to any electromagnetic field that does not conform to electromagnetic compatibility

## Installation Diagrams



Step 1: Tighten the left headset as shown in the figure. (Tightening torque: 35NM)



Step 2: Insert the torque sensor assembly through the left side of the bottom bracket, and pull its wire out of the lower hole of the bottom bracket.



Step 3: Tighten the right headset as shown in the figure. (Tightening torque: 35NM)



Step 4: Install the crankset until its spline is fitted with that of the torque sensor.



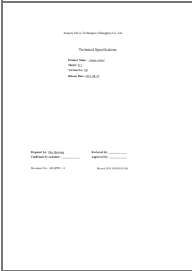
Step 5: Tighten the locking nut as shown in the figure.



Step 6: Install the crank. Thus, the torque sensor installation is completed.

**Warning:** The 2. 5 mm washers at both ends of the torque sensor must be installed to avoid axial over-tightness and uneven crank rotation.

Documents / Resources

	<a href="#">ANANDA S15 Torque Sensor</a> [pdf] User Manual 2BFWY-S15, 2BFWYS15, S15 Torque Sensor, S15, Torque Sensor, Sensor
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References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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