

PRECAUTION FOR USE

- Before using this product, carefully read the important warnings described in this instruction manual to understand the instructions thoroughly.

⚠ DANGER Instructions that the user must observe to prevent serious injury. **⚠ CAUTION** Useful information for handling this product.

⚠ WARNING Instructions that the user must observe to prevent accidents.

• About installation

⚠ DANGER **To prevent accident and fault:**
Conduct wiring work carefully. If a connecting part comes off under vibration during travel, motor control may be disabled.

⚠ WARNING **To prevent accident and fault:**
The soldering of each part must be conducted within 5 seconds.
Applying heat for a long period causes damage to the electronic components.

• About cable connections

⚠ CAUTION **To prevent accident and fault:**
Make sure that the cables are properly connected. Do not connect the power supply with reverse polarities. Be sure to insulate cable connection terminals. If the connection terminals are short-circuited, it may result in damage to this product.

• About modification

⚠ DANGER **To prevent smoke, fire and burns:**
Never attempt to solder the circuit board and electronic components in the motor.

• Handling precautions

⚠ DANGER **To prevent smoke, fire and burns:**
During use of this product (when a power supply is connected to the motor, or when the power switch is ON), keep watching the motor. If an abnormal condition occurs, it may result in fire or other accident.

⚠ CAUTION **To prevent accident and fault:**
Do not install this product in a place where water, oil, fuel or other conductive liquids are present. Electronic components are vulnerable to minerals contained in such liquids. If the product becomes wet with such liquids, immediately stop operation, and dry it.

⚠ CAUTION **To prevent accident and fault:**
Be sure not to use the motor in fully-throttled condition, if the motor is not incorporated in a chassis drive unit. Running the motor at a high speed under no load causes damage to the motor.

⚠ CAUTION **To prevent accident and fault:**
If an improper gear ratio is selected, it results in motor overload, causing the motor to be damaged by abnormal heating. Select an appropriate gear ratio carefully.

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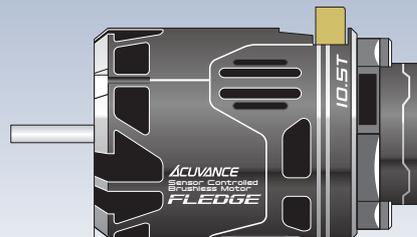
330300

ACUVANCE

Forced Air-cooled Motor

FLEDGE

INSTRUCTION MANUAL



Thank you for purchasing the ACUVANCE Sensor-Controlled Brushless Motor. This motor provides the best performance when used in combination with the ACUVANCE brushless ESC. To obtain 100% performance of this product, be sure to read this instruction manual. After reading this manual, keep it carefully.

Characteristic of FLEDGE

• Equipped with an innovative system [A.V.S.] that realizes forced air cooling inside the motor. This is the industry's first feature.

A.V.S. This is an epoch-making structure which some air holes are installed at various locations inside the motor and the heat source in the motor is directly cooled from the end bell side.

• Equipped with heat reduction alloy plate combined with vibration reduction structure.

• Direct power terminal system with integrated connector terminal and coil connection plate. This improves power transmission performance.

• Reduced motor weight, but still high-rigidity.

• Inherits the AGILE original system [M.F.C.S]

M.F.C.S Enables conversion to a torque-type or High RPM-type by changing only the magnetic force with the same-shaped (volume and weight) rotor.

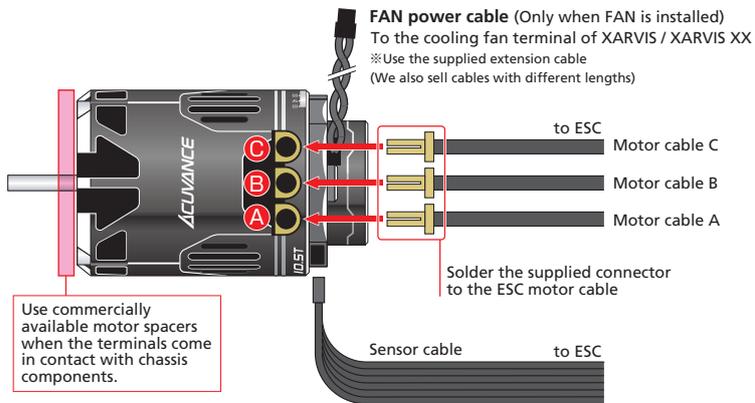
• Compatible with functions [torque level / torque end point] installed in XARVIS XX.

Please check our website or official Twitter (@ACUVANCE_JAPAN) for details on features and the latest information.

※FLEDGE is a motor dedicated to sensor-controlled brushless ESC. It is not applicable to sensorless ESC.

CONNECTIONS

Connect the motor as shown below:



•Sensor cord

The sensor cord transmits a position signal of Hall element to a speed controller (hereinafter, referred to as ESC). Since the ESC and the motor use the same type of connector, there is no limitation in cord inserting direction. However, when inserting the cord, match the cord with the connector shape. If the sensor cord is not connected, the ESC initial setup cannot be performed. (During travel, keep the sensor cord connected to the ESC.)

Connect the sensor cord securely, because a contact failure causes malfunction and damage to equipment. Modification of the sensor cord causes a failure of the motor. Never attempt to modify the sensor cord.

CAUTION When performing in-vehicle installation, do not group the motor cable with the sensor wire. Noise may cause improper operation.

WARNING To connect the LUXON to the ESC, be sure to connect the cables with the "A", "B" and "C" symbols matched with each other. If a cable with a different symbol is connected, motor rotation control is disabled. Furthermore, a large current may flow through the ESC and the motor, resulting in damage and burnout of the equipment. Unlike the sensorless type brushless motor, the LUXON cannot change the rotating direction even if the cable connections are exchanged. Change the rotating direction* with the ESC, as required.

CAUTION All motor cable "A", "B", "C", if it's not fitting solder between cable and connector terminal, motor may not operate correctly. Under overload situation, it may begin to melt solder. It's recommended that confirm soldering part if it doesn't operate normally.

* To change the motor rotating direction, a rotating direction change function is required for the ESC. (TACHYON provides this function).

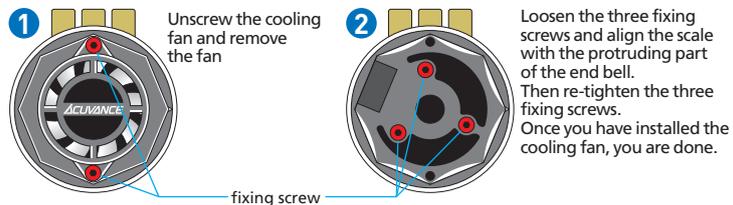
WARNING To replace the motor cable, use a soldering iron which provides a large soldering tip area and high output (approx. 70W), and quickly conduct the soldering work. If a soldering iron's output is low, solder is hard to melt, disabling secure connections of the cables. This may result in cable disconnection or contact failure when vibration is applied to the cable. If heat application time is excessively long, it causes damage to the internal parts. (Use thorough caution so that the terminals will not be short-circuited by solder.)

WARNING To fasten the motor to the motor mount, be sure to use screws with up to 8 mm length.

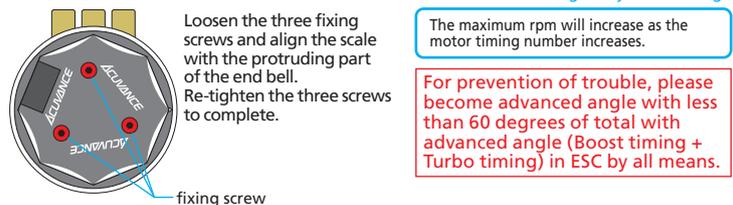
CAUTION Various wires/cables will deteriorate due to usage conditions and aging. This may result in the loss of performance for the motor/ESC main unit and in some cases, it may result in damage, so the replacement of various wires/cables in a timely manner is recommended.

How to adjust motor timing

With fan installed



When no fan is installed



IMPORTANT!

Advanced angle is for normally rotating it. When you reverse a motor direction change by function of ESC, the maximum and minimum of the scale are replaced.

• When you set advanced angle with maximum (55), it will be minimized at the time of the reverse rotation. When you set advanced angle with minimum (0), it will be maximum at the time of the reverse rotation. When you let motor direction reverse, please be careful enough.

Forced air-cooled Motor

FL EDGE

SPECIFICATIONS

| | 10.5T | 13.5T |
|-------------------------------------|---|-------|
| Allowable voltage (V)* ¹ | 4.8V~11.1V | |
| KV (rpm/V) | 3,530 | 2,830 |
| Power (W)* ² | 250 | 190 |
| Efficiency (%)* ² | 92 | 92 |
| Rotor type | Sintered rotor, ϕ 12.3 mm (Neodymium magnet) | |
| Coil winding method | Star-winding | |

The specifications are subject to change without prior notice.

*1: Allowable voltage of the motor. Pay attention to the ESC's allowable voltage.

*2: With 7.2 V input (4.5T: 6.0 V), Under no load

REFERENCE GEAR RATIO

Select an appropriate gear ratio based on the reference values listed below. The following values are only for your reference. The optimum gear ratio varies depending on the ESC performance, machine settings and characteristics of the traveling course. Determine the optimum gear ratio by observing heating-up condition of the ESC and the motor.

| | 10.5T | 13.5T |
|--|---------|---------|
| On-road technical course [7.2 - 7.4 V] | 5.0 : 1 | 4.4 : 1 |
| On-road technical course [6.0 V] | 5.2 : 1 | 4.6 : 1 |
| Off-road 2WD | 8.5 : 1 | 7.4 : 1 |
| Off-road 4WD | 7.8 : 1 | 6.5 : 1 |
| Off-road truck | 6.7 : 1 | 5.5 : 1 |

