PRECAUTION FOR USE

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



A DANGER Instructions that the user must observe to prevent serious injury.

Useful information for handling CAUTION this product.



WARNING Instructions that the user must observe to prevent accidents.

About installation

A 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.

A 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

A DANGER To prevent smoke, fire and burns:

Never attempt to solder the circuit board and electronic components in the motor.

Handling precautions

A 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.

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

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.

ACUVANCE CORPORATION Technical Service Dept.

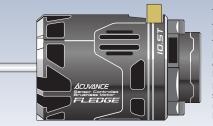
7F. Shin-Osaka Marubiru Annex 1-18-22 Higashinakajima Higashiyodogawa-ku Osaka 533-0033 Japan.

330300

www.acuvance.co.ip E-mail support@acuvance.co.jp ACUVANCE



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.

> This is an epoch-making structure which some air holes are installed at various locations inside the

A.V.S. 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]

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

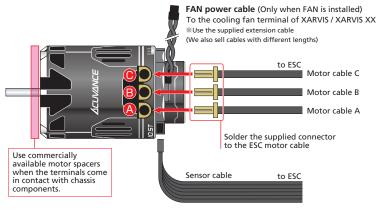
 Compatible with functions [torque level / torque end point] installed in XARVIS XX.

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.



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



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.



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 guickly 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.)



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

CAUTION

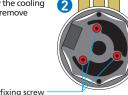
Various wires/cables will deteriorate due to usage conditions and aging. This may result in the loss of performance for the motor/ESC main unit and in some cases, it may result in damage, so the replacement of various wires/cables in a timely manner is recommended.

How to adjust motor timing

With fan installed



Unscrew the cooling fan and remove the fan



Loosen the three fixina screws and align the scale with the protruding part of the end bell. Then re-tighten the three fixing screws. Once you have installed the cooling fan, you are done.

When no fan is installed



Loosen the three fixing screws and align the scale with the protruding part of the end bell. Re-tighten the three screws to complete.

scale of motor timing Set the line to an angle of your choosing.

The maximum rpm will increase as the motor timing number increases.

For prevention of trouble, please become advanced angle with less than 60 degrees of total with advanced angle (Boost timing + Turbo timing) in ESC by all means.

fixing screw

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

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

Repair Conditions

1. Parts that can be repaired .:

 Internal electronic circuitry Damage caused by incorrect connection, inter-terminal shorting, or driving is not covered by warranty.

- 2. Note that this device will not be covered under warranty if the housing has been opened.
- ACUVANCE assumes no responsibility for damage to the receiver or servo caused by the incorrect connection of this product.
- 4. Note that if the repair card (located below) or the repair sheet (on the homepage) is not properly filled out, repair and return of the ESC may be delayed.

Warranty					
Item Manufacture no.	FLEDGE	Purchase date	(M/D/Y) / /		
		Warranty term	3 months from purchase date		
Customer Address E-mail Phone number	(@) Tel.	no.		
Name					

Note that if the date and location of the motor purchase are not entered on the warranty card, you will be charged for repairs even within the warranty term.

- If a failure occurs within three months of purchasing the motor, write the symptoms of the problem and operating conditions in the section below and attach this to the product. For repair, send the motor to the distributor where you purchased the product or directly to ACUVANCE (Technical Service Department).
- ACUVANCE assumes no responsibility for damage or loss occurring during transportation of the product. Please take note of this beforehand.
- When listing the symptoms for a repair request, you can conveniently use the repair sheet on the ACUVANCE homepage and then send this along with the warranty card. (Click the "repair" section located in the upper-right side of our homepage. Then click "repair sheet", located on the left side.)

Repair card

1. Symptoms

Write the symptoms of the problem, giving as much detail as possible.

2. Payment for repair charges

- ☐ There is no need to contact me, if the charges are at or below 10,000 yen, no contact is necessary
- I would like to be contacted if there is compensation
- * Though it depends on the details of the repair, indicating in advance that no contact is necessary will normally shorten the time is takes to complete the repair.

ACUVANCE CORPORATION Technical Service Dept.

7F, Shin-Osaka Marubiru Annex 1-18-22 Higashinakajima Higashiyodogawa-ku Osaka 533-0033 Japan.

www.acuvance.co.jp E-mail support@acuvance.co.jp Distributor's name (shop name, address, and tel. no.)

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