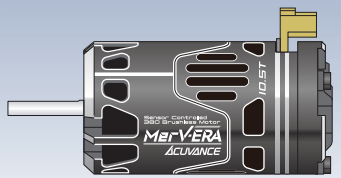
ACUVANCE

MerV-ERA

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 MerV-ERA

- Achieves high output comparable to that of a 540 motor.
- Equipped with [M・F・C・S] that allows changing motor characteristics with a rotor of the same diameter and weight.
- Equipped with a variable motor timing system, the characteristics can be easily changed to torque type or rotation type.
- Tri-Blade system provides high cooling performance.
- Vibration reduction structure using special alloy plate.
- Equipped with the industry's first direct power terminal system for FLEDGE, it transmits power efficiently.
- Compatible with the "torque level/torque end mode" installed in our brushless E.S.C.
- Can also be mounted on a motor mount compatible with 540 size (when using optional accessories).

※Please check our website for detailed information on features and the latest information on this product.
※MerV-ERA is a motor dedicated to sensor-controlled brushless ESC. It is not applicable to sensorless ESC.

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.
⚠WARNING	Instructions that the user must observe to prevent accidents.
CAUTION	Useful information for handling this product.

•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:

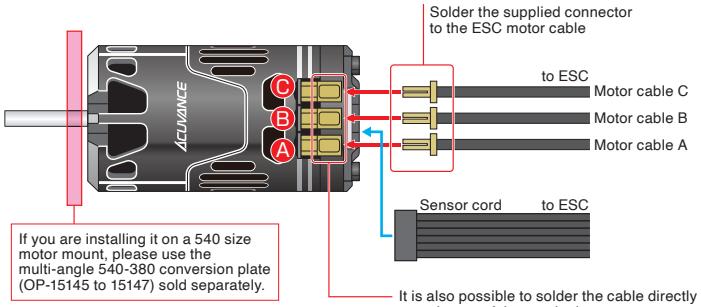
Be sure not to use the motor in fully-throttled condition, if the motor is not incorporated in a chassis drive unit. Running the motor at a high speed under no load causes damage to the motor.

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.

CONNECTIONS

Connect the motor as shown below:



If you are installing it on a 540 size motor mount, please use the multi-angle 540-380 conversion plate (OP-15145 to 15147) sold separately.

It is also possible to solder the cable directly onto the top of the terminal.

•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).

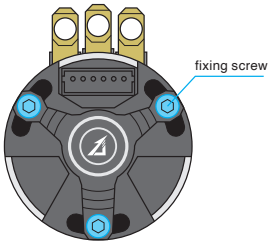
⚠WARNING To replace the motor cable, use a soldering iron which provides a large soldering tip area and high output (approx. 70W), and quickly conduct the soldering work. If a soldering iron's output is low, solder is hard to melt, disabling secure connections of the cables. This may result in cable 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 The screws used to secure the motor to the motor mount should be long enough so that they do not come into contact with the rotor blades.

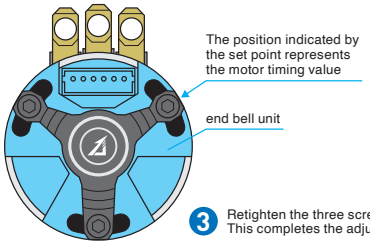
CAUTION Various wires/cables will deteriorate due to usage conditions and aging. This may result in the loss of performance for the motor/ESC main unit and in some cases, it may result in damage, so the replacement of various wires/cables in a timely manner is recommended.

How to adjust motor timing

1 Loosen the three screws slightly



2 Adjust the motor timing by rotating the end bell unit, which has memory numbers printed on it.



3 Retighten the three screws. This completes the adjustment.

The higher the motor timing, the higher the maximum RPM will be, but at the same time, the more heat will be generated. To prevent breakdowns, make sure that heat generated during 5 to 10 minutes of driving is below a maximum of 70°C.

IMPORTANT! The motor timing memory is for forward rotation. If you want to reverse the motor using the ESC's rotation direction change function, set the memory to a value obtained by subtracting the motor timing you want to set from 60.

(Example) If you want to set the motor timing to 40 when rotating in reverse, then [60 40=20], so set the memory to the 20 position.

SPECIFICATIONS

	10.5T	13.5T	17.5T
Allowance Voltage (V)*1	4.2V～8.4V		
KV (rpm/V)	5,260	4,150	3,250
Power (W)*2	250	190	130
Efficiency (%)*2	92	92	92
Rotor type	LV38 Standard Rotor		
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, Motor Timing 35°

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]	6.6 : 1	5.0 : 1
On-road technical course [6.0 V]	6.0 : 1	5.2 : 1
Off-road 2WD	9.5 : 1	8.5 : 1
Off-road 4WD	8.6 : 1	7.8 : 1
Off-road truck	7.3 : 1	6.7 : 1

Warranty

Item Manufacture no.	MerV-ERA	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 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.
3. 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.

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.

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Osaka 533-0033 Japan.
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Distributor's name
(shop name, address, and tel. no.)