

X12 VECTOR StockSpec

© LRP electronic GmbH 2009

**NEW STOCKSPEC MAGNET
HVS TECHNOLOGY
PRECISENSOR™ SYSTEM
EASY-TECH FEATURES**

USER GUIDE

LRP electronic GmbH
Wilhelm-Enssle-Str. 132-134
73630 Remshalden, Germany
info@LRP.cc www.LRP.cc



WARNING NOTES



Do not use aggressive advanced timing speed-control profiles with X12 StockSpec motors!

Because of its unique design, with HVS Technology and PreciSensor System, such profiles are not required to gain same performance as normal motors (with extreme speed-control timing advance) and with X12 StockSpec such profiles only result in higher motor temperature but not higher performance!

So when using an X12 StockSpec motor with our SPX StockSpec speed-control we recommend not using profiles 7 and 8!

No toy. Not suitable for children under 14 years.

Keep the product out of the reach of children.

Pay close attention to the following points, as they can destroy the product and void your warranty. Non-observance of these points can lead to property damage, personal and severe injuries!

- Never leave the product unsupervised while it is switched on, in use or connected with a power source. If a defect occurs, it could set fire to the product or the surroundings.
- Avoid incorrect connections or connections with reversed polarity of the product.
- All wires and connections have to be well insulated. Short-circuits can possibly destroy the product.
- Never allow this product or other electronic components to come in contact with water, oil or fuels or other electroconductive liquids, as these could contain minerals, which are harmful for electronic circuits. If this happens, stop the use of your product immediately and let it dry carefully.
- Avoid overtightening the motor screws. Damaged threads are not covered under warranty!**
- Avoid overloading the motor due to wrong or too long gear ratios.
- Never apply full throttle if the motor is not installed. Due to the extremely high RPMs without load, the motor can get damaged.**
- Always wire up all the parts of the equipment carefully. If any of the connections come loose as a result of vibration, you could lose control over your model.
- Avoid soldering longer than 5 seconds per soldering joint when replacing the power wires to prevent possible damage to the product due to overheating of the components. Use a high power soldering station with at least 60W for soldering.

The manufacturer can not be held responsible for damages, which are a result of non-observance of the warning notes and security advices.

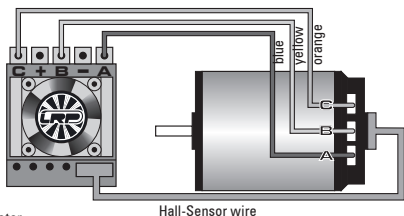
INSTALLATION & CONNECTIONS

HALL-SENSOR WIRE: This bi-directional multipole wire, which is supplied with all LRP sensored brushless speed-controls, connects the speedo and the motor. Do not alter or modify this cable! Make sure, that the plugs have a proper and tight fit and are always clean.

POWER WIRES: The unique splitted solder-tabs allow easy and convenient replacement of the power wires. Nevertheless some soldering skills are required. Talk to your local hobbyshop if you are concerned about soldering the wires yourself.

Caution: Avoid soldering longer than 5sec per soldering joint to prevent possible damage to the motor due to overheating of the inner components!

- Install the motor in the model.
- Caution:** The maximum length of the motor screws shall not exceed 8mm.
- Connect the power wires of the speed-control to the motor. Make sure, that the sequence is correct by checking the color code and the letters:
 - MOT.A = blue wire
 - MOT.B = yellow wire
 - MOT.C = orange wire
- If you're using a sensored speed-control: attach the hall-sensor wire to motor and speedo now.
- Finally check all the connections before using the motor.



PRECISENSOR™ SYSTEM

LRP's world exclusive PreciSensor™ System allows precise control for best and most efficient performance. Fast, simple and super-accurate timing adjustment using the supplied timing inserts. By altering the timing, you move the powerband and alter the characteristics of the motor.

Three important things to remember about timing adjustments:

- Higher timing results in higher rpm but worse efficiency/torque and vice versa.
- Higher timing requires shorter gearing!
- Timing adjustments should be done by experienced racers only, others please leave timing on standard setting!

To alter the timing, proceed as following:

- Loosen the center endcover screw and remove screw and plastic endcover.
- change to desired timing insert and rotate sensor assembly slightly.
- re-attach endcover and tighten M2 screw carefully (do not overtighten this screw!)

Finished!

Insert Marking	Sensor Timing	Comment
oooo	X-10°	
ooo	X-5°	
oo	X	Standard insert, factory recommendation
o	X+5°	
-	X+10°	



The crossed-out wheeled bin means that within the European Union the product must be taken to separate collection at the product end-of-life. Do not dispose of these products as unsorted municipal waste.

REPAIR PROCEDURES / LIMITED WARRANTY

All products from LRP electronic GmbH (hereinafter called "LRP") are manufactured according to the highest quality standards. LRP guarantees this product to be free from defects in materials or workmanship for 90 days (non-european countris only) from the original date of purchase verified by sales receipt. This limited warranty doesn't cover defects, which are a result of misuse, improper maintenance, outside interference or mechanical damage. „This applies among other things on:

- Overload (for example: unsoldered Star-ring)
- Excessive amounts of dirt inside the motor
- Rotor damage due to debris inside motor
- Mechanical damage due to external causes
- Rust*

To eliminate all other possibilities or improper handling, first check all other components in your model and the trouble shooting guide, if available, before you send in this product for repair. If products are sent in for repair, which do operate perfectly, we have to charge a service fee according to our pricelist.

With sending in this product, the customer has to advise LRP if the product should be repaired in either case. If there is neither a warranty nor guarantee claim, the inspection of the product and the repairs, if necessary, in either case will be charged with a fee at the customers

Dear Customer,

Due to your trust in this LRP product. By purchasing a **LRP VECTOR X12 StockSpec** brushless motor, you have chosen the highest developed competition brushless motor. LRP's R&D team took all the experience and testing results from the last 4 years of practical tests and racing with the LRP brushless motors on the highest levels of competition. IFMAR World Champion Technology!

Please read the following instructions carefully before you start using your motor. This user guide contains important notes for the installation, the safety, the use and the maintenance of this product. Thus protecting yourself and avoid damages of the product.

Proceed according to the user guide in order to understand your motor better. Please take your time as you will have much more joy with your product if you know it exactly.

This user manual shall be kept in a safe place. If another customer is using this product, this manual has to be handed out together with it.

TECHNICAL DATA

		21.5T	17.5T	13.5T	10.5T	9.5T
Order No.		50862	50852	50842	50832	50822
Voltage input	[V]	3.7 - 7.4V				
RPM¹		12240	15840	21960	25920	28800
Specific RPM/V	[kV]	1700	2200	3050	3600	4000
Power¹	[W]	148	183	241	306	333
Efficiency¹	[%]	93	93	92	92	91
Weight	[g]	165				
Magnet material		Sintered 12.45mm StockSpec (#50635)				
Winding		Star (Multistrand Copper Winding)				
Sensor assignment		Compliant to IFMAR/EFRA/ROAR/FEMCA/JMRC/BRCA/DMC rules				

Specifications subject to change without notice. ¹Measured at 7.2V

GEARING

A wrong gear-ratio causes excessive heating and may result in motor damage or thermal shutdown of your speed-control. Take your kits manual to find the correct pinion. Motor temperatures should be monitored when you're on a new track, use a new motor or make a massive gear change. Motor temperature should never exceed 100°C (= 210°F).

The following gear ratios are only a recommendation and a good starting point. The actual gearing may vary due to different speed-controls, speedo profiles, motor timings, tracks, track conditions and batteries.

USAGE	Volts	21.5T	17.5T	13.5T	10.5T	9.5T
Touring Car	7.4	3.5 : 1	4.0 : 1	6.0 : 1	6.5 : 1	7.0 : 1
	6.0	--	--	--	5.5 : 1	6.0 : 1
1:12	4.8	68mm	68mm	53mm	44mm	40mm
2wd + 4wd Off-Road	7.4	5.5 : 1	6.0 : 1	7.0 : 1	8.0 : 1	9.0 : 1
Truck Off-Road	7.4	6.5 : 1	7.0 : 1	8.0 : 1	9.0 : 1	10.0 : 1

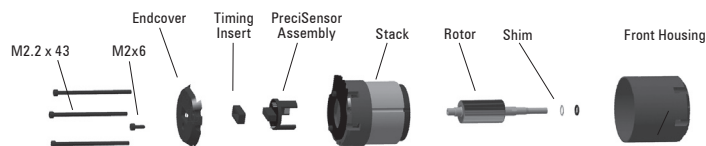
DISASSEMBLY

Due to the maintenance free design of the Vector X12 StockSpec, it is not necessary to open the motor frequently under normal conditions. It is just recommended to check that all screws are still securely fastened. Nevertheless it is recommended that you frequently maintain (clean, check, oil, replace if needed!) the ball bearings in order to achieve best performance. Of course you can also disassemble the motor entirely if you wish to do so.

Disassemble the motor:

- Loosen the center endcover screw and remove screw, plastic endcover and timing insert.
- Remove PreciSensor™ Assembly by pulling gently at sensor connector.
- Loosen and remove the long/outer 3 screws and gently slide off the front aluminium housing.
- Remove the o-ring and shim from the shaft.
- Carefully pull the rotor out of the housing and place it in clean towel or designated rotor container.
- You have now access to both ball bearings for cleaning, maintenance and replacement. You may also use compressed air to clean the inside of the motor after you have removed the bearings.

Be careful with correct shim/o-ring position during re-assembly and avoid overtightening the screws!



SPARE- AND OPTIONAL PARTS

Spare parts:

- #50627 X12 StockSpec 694ZZ ABEC5 Ball Bearings (2pcs)
- #50635 X12 StockSpec Sintered Rotor
- #50622 X12 Small Parts Set (includes: screws, endcover, timing inserts, shims, o-ring)
- #50623 X12 PreciSensor Assembly (complete replacement sensor assembly, ready to use)

Optional parts:

- #50632 X12 Modified Tuning Rotor Sintered - 12.0mm
- #50632 X12 Modified Tuning Rotor Sintered - 12.5mm
- #50634 X12 Modified Tuning Rotor Sintered - 13.0mm
- #50625 X12 Modified Lightweight Aluminium Front Housing
- #50626 X12 Aluminium Endcover with cooling fins
- #819307 Sensor-Wire „HighFlex“ 70mm
- #819310 Sensor-Wire „HighFlex“ 100mm
- #819315 Sensor-Wire „HighFlex“ 150mm
- #819320 Sensor-Wire „HighFlex“ 200mm
- #82505 Power-Wire Set Brushless 2.6mm² (red, black, blue, orange, yellow)
- #82506 Power-Wire Set Brushless 3.3mm² (red, black, blue, orange, yellow)
- #82510 Radical Motor Heatsink and Fan (unique „clamp style“ heatsink design)
- #65790 Works Team Tools, Motor Bearing Replacer

expense according to our price list.

A proof of purchase including date of purchase needs to be included. Otherwise, no warranty can be granted. For quick repair- and return service, add your address and detailed description of the malfunction.

If LRP no longer manufactures a returned defective product and we are unable to service it, we shall provide you with a product that has at least the same value from one of the successor series.

The specifications like weight, size and others should be seen as guide values. Due to ongoing technical improvements, which are done in the interest of the product, LRP does not take any responsibility for the accuracy of these specs.

LRP-Distributor-Service:

- Package your product carefully and include sales receipt and detailed description of malfunction.
- Send parcel to your national LRP distributor.
- Distributor repairs or exchanges the product.
- Shipment back to you usually by COD (cash on delivery), but this is subject to your national LRP distributor's general policy.