MA00207

ORDER NO.: **50652 8.5T** ● **50692 4.5T** ●
50662 7.5T ● **50702 4.0T** ●
50672 6.5T ● **50712 3.5T** ●
50682 5.5T ● **50722 3.0T** ●

PRECISENSOR™ SYSTEM
12.5MM SINTERED MAGNET
BRUSHLESS MODIFIED
EASYSOLDER DESIGN

X12 - USER GUIDE

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

1. WARNING NOTES

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 electro-conductive 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.
- Never open the product and never solder on the PCB or other components.
- **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 loose control over your model.
- Avoid soldering longer then 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.

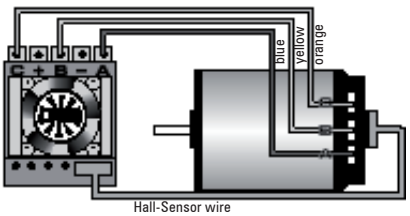
2. INSTALLATION / CONNECTIONS

HALL-SENSOR WIRE: This bi-directional multipole wire, which is supplied with all LRP Sensored 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 then 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.



Hall-Sensor wire

3. PRECISENSOR™ SYSTEM

LRP's world exclusive PreciSensor™ System allows precise control for best and most efficient performace. 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:
1. Higher timing results in higher rpm but worse efficency/torque and vice versa.
2. Higher timing requires shorter gearing!
3. Timing adjustments should be done by experienced racers only, others please leave timing on standard setting!

To alter the timing, proceed as following:

1. Loosen the center endcover screw and remove screw and plastic endcover.
2. change to desired timing insert and rotate sensor assembly slightly.
3. 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 (Std.)	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 seperate collection at the product end-of-life. Do not dispose of these products as unsorted municipal waste.

Dear Customer,

thank you for your trust in this LRP product. By purchasing a LRP VECTOR X12 Brushless Modified motor, you have chosen the highest developed competition brushless motor. LRPs R&D team took all the experience and testing results from the last 4 years of practical tests and racinig with the LRP brushless motors on the highest levels of competition and started with a clean sheet of paper for the all new X12 motors.

Please read the following instructions carefully before you start using your LRP VECTOR X12 Brushless Modified 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 LRP VECTOR X12 Brushless Modified 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.

4. SPECIFICATION

X12 VECTOR		**8.5T**	**7.5T**	**6.5T**	**5.5T**	**4.5T**	**4.0T**	**3.5T**	**3.0T**
Order No.		50652	50662	50672	50682	50692	50702	50712	50722
Voltage input	[V]	4.8 - 7.4						4.8 - 6.0	
RPM[1]		30.240	33.840	38.800	45.360	56.880	63.360	72.000	83.520
Specific RPM/V	[kV]	4.200	4.700	5.400	6.300	7.900	8.800	10.000	11.600
Power[1]	[W]	307	340	394	463	565	621	698	797
Efficiency[1]	[%]	93	92	92	91	91	90	89	88
Magnet material		Sintered 12.5mm (#50633)							
Winding		Star (Multistrand Copper Winding)							
Sensor assignment		Compliant to IFMAR/EFRA/ROAR/FEMCA/JMRCA/BRCA/DMC rules							
Minimum speedo requirement		SPX Super Reverse (#80400)			Sphere Comp. (#80700) SPX Comp. StockSpec (#80710)			Sph.Co. TC-Spec 80750 SPX Bullet Reverse 80450	

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

5. GEARING

Please pay special attention to our gear ratio recommendations! 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.

Please note, that following gear ratios are only a recommendation and a good starting point. The actual gearing may vary due to different tracks, models, track conditions and/or batteries:

USAGE	**Volts**	**8.5T**	**7.5T**	**6.5T**	**5.5T**	**4.5T**	**4.0T**	**3.5T**	**3.0T**
TC (small track)	6.0	6.8:1	7.4:1	7.8:1	8.2:1	8.6:1	***9.0:1***	***9.6:1***	11.0:1
TC (big track)	6.0	5.2:1	5.8:1	6.2:1	6.6:1	7.0:1	***7.7:1***	***8.2:1***	9.5:1
TC (small track)	7.2/7.4	7.5:1	8.0:1	8.5:1	9.0:1	***9.5:1***	10.0:1	--	--
TC (big track)	7.2/7.4	5.7:1	6.2:1	6.7:1	7.2:1	***8.0:1***	***8.7:1***	--	--
1:12	4.8	39.5mm	38.0mm	36.5mm	***35.0mm***	***33.5mm***	--	--	--
2wd Off-Road	7.2/7.4	***8.5:1***	***9.4:1***	10.2:1	--	--	--	--	--
Truck Off-Road	7.2/7.4	9.5:1	***10.4:1***	***11.2:1***	12.2:1	--	--	--	--
4wd Off-Road	7.2/7.4	7.0:1	8.0:1	***9.0:1***	10.0:1	11.0:1	--	--	--

Bold/Italic marked types are the LRP factory-team's recommendations for each class!

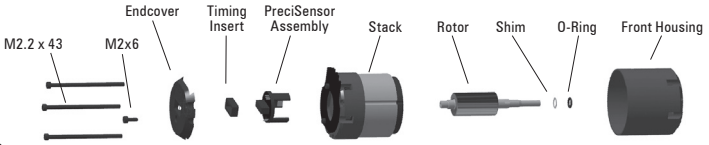
6. DISASSEMBLY

Due to the maintenance free design of the LRP Vector X12, 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, if you intend to check the ball bearings and oil them from time to time or want to change to another rotor type, you can of course disassemble the motor.

Disassemble the motor:

1. Loosen the center endcover screw and remove screw, plastic endcover and timing insert.
2. Remove PreciSensor™ Assembly
3. Loosen and remove the long/outer 3 screws and gently slide off the front aluminium housing.
4. Remove the o-ring and shim from the shaft.
5. Carefully pull the rotor out of the housing and place it in clean towel or designated rotor container.
5. 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!



7. SPARE- + OPTIONAL PARTS

Spare parts:

#50620	X12 MR104ZZ ABEC5 Ball Bearings (2pcs)
#50633	X12 12.5mm 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)
#50624	X12 Aluminium Front Housing

Optional parts:

#50621	X12 MR104ZZ Ceramic Ball Bearings (2pcs), for lowest friction
#50632	X12 Tuning Rotor Sintered - 12.0mm, for highest topspeed
#50634	X12 Tuning Rotor Sintered - 13.0mm, for maximum torque
#81910	Hall-Sensor Wire 20cm
#81920	Hall-Sensor Wire 10cm (shorter wire for 1/12, TC, etc)
#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	Brushless+Brushed Cooling Set (specially made heatsink and high-performance fan)

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 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.