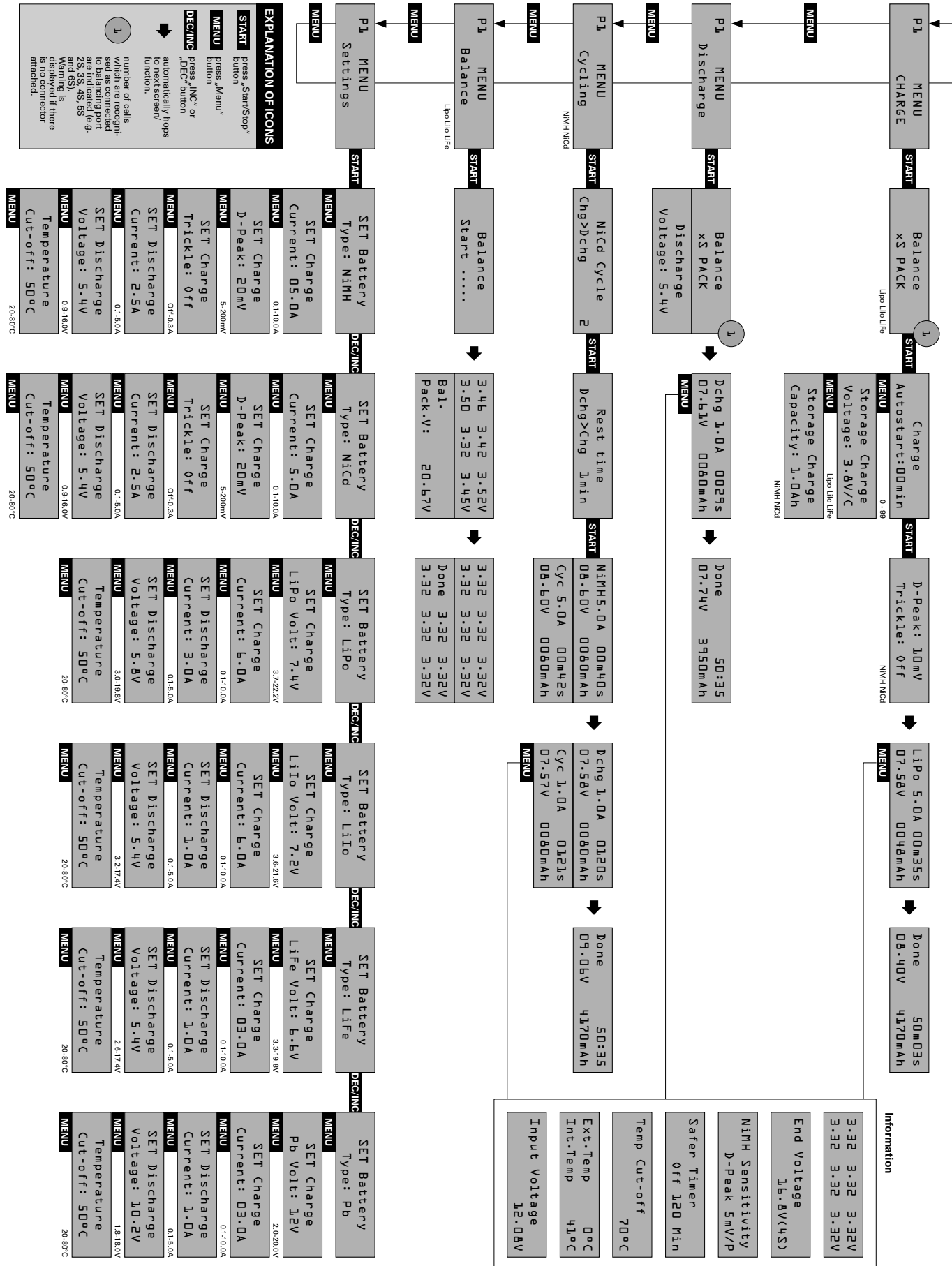


PROGRAM STRUCTURE



DEAR CUSTOMER,

thank you for your trust in this LRP product. By purchasing a Quadra Competition V1 you have chosen a high-performance product which has the latest technology incorporated including the following High-Tech features:

- Charge - Discharge - Cycle - Balance
- Integrated Balancer for 2S-6S Lixx packs
- Blue backlight 16x2 LCD
- Multi-Protection-System
- USB Charge output
- LiPo • LiFePo • Lilo • NiMH • NiCd • Pb
- Dual Input (100-240Vac + 12Vdc)
- 5 User Profile Memories
- Language selection
- Software Update

Please read the following instructions carefully before you start using your LRP charger. 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 charger 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

Dimensions	143x160x60mm
Weight	620g
Input voltage range	11-18V [DC] 100-240V [AC]
Charging capability	1-6 cells [LiPo/Life/Lilo] 1-15 cells [NiMH/NiCd] 2-20V [Pb]
Charge power	max. 80W

Specifications subject to change without notice

Charge current	0.1-10.0A
Trickle current	0-300mA
Storage charge mode	Yes
Discharge power	max. 25W
Discharge current	0.1-5.0A
Discharge cut-off voltage	0.9-19.8V
Delta peak cut-off sensitivity	Yes, 5-200mV/pack
Autostart timer	Yes, 0-99[min]

Cycle mode	Yes (NiCd/NiMH)
User profile memory	Yes, 5
Safety timer	Yes, 1-720min
Acoustic signal type	Buzzer
Display	LCD 16x2, blue backlight
Buttons	4
Multi Protection System	Yes
DC input connection	pluggable DC input wire

AC input connection	Internal SMPS plug
Output connection	alligator clips with 4 mm plug
Internal cooling fan	Yes
USB connection	Yes
USB charge output	5V/1A
Integrated balancer	Yes, 2S-6S
Temperature Cut-off	Yes, 20-80°C (optional)
Updateability	Yes

CONNECTIONS & OPERATION



The Quadra Competition V1 was developed with the main objective placed on easy operation of all features. Intuitive navigation by means of 4 buttons makes it very easy to use and the 2-line blue backlight LCD offers perfect, reliable control of all settings and functions.

DC INPUT:
connect to a suitable DC source with 11-18V, using the supplied connection wire.
Caution: Be careful with correct polarity!
Red = Plus / Black = Minus

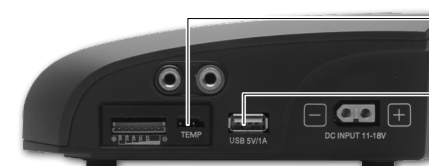
OUTPUT JACKET:
connect battery to the 4.0mm jacket, using supplied charge wires.

BALANCER CONNECTOR:
high-performance integrated Lixx balancer for 2S to 6S packs using EHR balancing connector.

BUTTONS (FOR DETAILED FUNCTIONS SEE FLOWCHART):
MENU -> press: Scroll/navigate through the function list.
-> hold: Jump back to initial screen.
DEC (-) -> Decrease selected (blinking) value.*
INC (+) -> Increase selected (blinking) value.*
START/STOP -> Enter or select function / Start a program / Cancel a running program.
* Button has high-speed function for rapid setting (press and hold to change value faster).

16X2 LCD SCREEN

Active function + current	NiMH 5.0A	00m35s	Time elapsed since start
Voltage at output connectors	08.58V	0048mAh	Capacity



TEMPERATURE SENSOR (OPTIONAL):
connect the optional temperature probe to measure the battery temperature.

USB CHARGE OUTPUT:
5V/1A USB charge output for electronic devices (mobile phones, etc.).

AC INPUT:
connect to main power with 100-240V AC
Caution: Do not alter the wire or connector as this will void your warranty!

USB CONNECTION - PC LINK:
used for upcoming firmware updates.

User Manual - Quadra Competition V1



SETTINGS

The Quadra Competition V1 allows you to save 5 individual user profiles. This means you can customize all 5 profiles and store them for later use. This charger has five preset factory-default user settings when shipped out as shown in this table:

The active profile P1 to P5 is displayed in the main menu. By pressing the INC+ and DEC- buttons you can change between the profiles and their settings.

In P0 Mode (System Set) you can adjust the following general settings: safety timer value, key beep and buzzer (on/off) and menu language.

Factory reset: In P0 Mode (System Set), you can reset all values to default factory settings simply by holding START button in "Load factory settings" screen.

User Profile	P1	P2	P3	P4	P5
Battery type	NiMH	LiPo	LiPo	LiPo	LiPo
Charge LiPo Volt	/	7.4V	11.1V	14.8V	18.5V
D-Peak	20mV	/	/	/	/
Trickle	off	/	/	/	/
Charge Current	5.0A	6.0A	3.0A	3.0A	3.0A
Discharge Current	2.5A	2.5A	1.0A	1.0A	1.0A
Discharge Voltage	5.4V	6.6V	9.9V	13.2V	16.5V
Cut-off Temp	50°	50°	50°	50°	50°

User Profile	P0
Safety Timer	off (1-720min)
Button Sound	on (off)
Buzzer	on (off)
Language	English (German)

CHARGE

SET BATTERY TYPE: the Quadra Competition V1 can charge pretty much any type of battery (LiPo, LiFePo, Lilo, NiMH, NiCd, Pb) and incorporates the designated charge algorithms for each battery for best performance, reliability and safety.

- Lixx + Pb:** charging using the CC/CV-charging method. With this charging method, the battery gets charged with a constant current first. As soon as the battery voltage reaches the max. allowed charging voltage per cell (for example, LiPo 4.2V and LiFePo 3.7V), the charger automatically reduces the charging current till the battery is fully charged.

Caution: We recommend to use the balancer in Lixx charging modes as this prevents wrong setting adjustments (xS selection and maintains your packs in best condition).

- NiMH/NiCd:** charging with constant current + Delta-peak detection. This is the most popular charging method for NiMH/NiCd-batteries in competition.

Caution: Make sure you always choose the correct battery type setting for the battery you want to charge! Wrong setting may result in damage to the battery, fire or explosion!

SET CHARGE CURRENT: the charge current can be set from 0.1-10A. If not otherwise specified by the battery manufacturer, choose 1C* charge rate which is always a safe value.

SET CHARGE DELTA PEAK: with NiMH/NiCd-batteries, you only obtain the optimum battery performance by slightly „overcharging“ the battery. In real terms, it will not be overcharged, but charged to an optimum level. The battery voltage drops at the end of the charging process (delta). The size of the drop (Delta-Peak) is adjustable in the range between 5-200mV. The higher the value, the hotter the battery will be at the end of the charge. We recommend to start with the Factory-default settings.

Note: The adjustable Delta-Peak value applies to the whole battery pack and not to one single cell!

SET CHARGE TRICKLE: this current, which flows after delta peak cut-off, is adjustable from 0-300mA to achieve the highest possible voltage for NiCd cells. Set this function to „Off“ for NiMH cells.

SET CHARGE LIXX (PACK VOLTAGE): the packs rated voltage for LiPo/LiFePo/Lilo must be set according to the packs rating. See table:

Cell Number	LiPo	LiFePo	Lilo
1 (1S)	3.7V	3.3V	3.6V
2 (2S)	7.4V	6.6V	7.2V
3 (3S)	11.1V	9.9V	10.8V
4 (4S)	14.8V	13.2V	14.8V
5 (5S)	18.5V	16.5V	18.0V
6 (6S)	22.2V	19.8V	21.6V

SET CHARGE PB: Voltage setting must be set from 2- 20V (2V step) depending on the rated battery voltage.

Note: Charge Wattage limitation: the charge wattage is limited to 80W (Watts = Voltage x Current / e.g. for 7.4V x 10A = 74W), this means packs with higher than 8.0V can not be charged with 10A but the charger will automatically set the highest possible current by itself during charging.

CHARGING WITH TEMPERATURE SENSOR: you can use the optional temperature sensor to measure the actual temperature of your battery pack: If the preadjusted temperature is reached the charging will stop and a warning message will be displayed. This feature is not a charging method but an additional safety function.

DISCHARGE

The adjustable discharge circuit can be used for 1-15 cell NiMH/NiCd- and 1-6 cell Lixx/Pb-packs. By discharging your battery pack you obtain vital information about remaining capacity for optimizing your motor or gear ratio for the next run. This also maintains your battery packs in good condition.

SET DISCHARGE CURRENT: The discharge current can be set from 0.1 - 5.0A.

SET DISCHARGE VOLTAGE: the cut-off voltage can be adjusted from 0.9 - 19.8V, depending on the number of cells. We recommend following cut-off voltages: LiPo = 3.2V/cell *** LiFePo = 2.6V/cell *** NiMH/NiCd = 0.9V/cell.

This means for example: 6.4V for a 2S (= 2-cell) LiPo *** 5.2V for a 2-cell LiFePo *** 5.4V for 6-cell NiMH/NiCd.

Note: Discharge Wattage limitation: the discharge wattage is limited to 25W (Watts = Voltage x Current / e.g. for 7.4V x 3.5A = 24W)), this means packs with higher than 7.4V can not be discharged with max. current but the charger will automatically set the highest possible current by itself during discharging.

CYCLE

This fully automatic cycling function allows you basic determination of actual performance of your packs. Battery packs change during their life span. Use this function in your charger to control the actual quality of your packs. This may prevent unpleasant surprises.

Tip: We recommend cycling especially if your packs were not in use for a longer time as this can improve performance of the batteries.

The Cycle mode uses the charge and discharge values of the currently selected programm, stored under Settings. You can adjust:

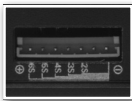
- Cycle direction: CHG > DCHG: charge first - ends with empty battery
DCHG > CHG: discharge first - ends with full battery
- Number of cycles from 1-5: choose the number of cycle repetitions.
- Rest time: There is a short delay in the timer during cycle operation, in order not to over-heat the batteries, which is as following:
Discharge > Charge: 1min (if discharge was finished within 10min), otherwise set it to 5min

BALANCING

The Quadra Competition V1 contains an integrated high-performance balancer for 2S to 6S Lithium based (LiPo, LiFePo, Lilo) battery packs using EHR balancing connector. Please refer to drawing (also like that on charger) for correct polarity, basically minus (black wire) is always on the far right side of the plug as shown on drawing. The balancer equalises the cells, during charge- and balance-function, which results in higher performance and higher cycle-life.

Caution: Avoid incorrect connection as in the worst case this may result in damage to the battery and/or charger!

Tip: We recommend the use of balancer at every charge or discharge operation as this will maintain the performance of your packs in best condition.



SPECIAL FEATURES

STORAGE CHARGE MODE: you should not store your batteries completely empty or completely full as this will harm them and lower their performance. Due to this fact this charger features a "Storage charge" mode. This function lets you set a fixed voltage (for Lixx batteries) or fixed capacity (for Nixx batteries) value and the battery will be partially charged or discharged automatically, exactly to the adjusted value. Thus you can always perfectly prepare your battery for storage if you want to store them over a longer period of time.

- Enter Storage charge by pressing "MENU" button in "Autostart screen" (please see Program structure flowchart for details).
- In Lixx Mode operational only with balancer.

Our recommendations:

- NiMH/NiCd cells: 50% of nominal capacity
- LiPo/LiFePo/Lilo cells: at nominal voltage (e.g. 3.7V for LiPo / 3.3V for LiFe)

Tip: NiMH batteries can be stored for about 1-2 months without problems using this method. LiPo/LiFePo batteries can be stored for about 6 months without problems. After this time period, you should check the battery and, if necessary, recharge them again.

AUTOSTART TIMER: this handy feature lets you preselect when you want to start charging your battery. The Autostart timer is adjustable from 0 - 99min. If you stay in the „Autostart Display“

for longer then 30sec without setting a value, the charging process will start automatically.

CHANGING THE CHARGE CURRENT ON THE FLY: The charge current can be changed on the fly by pressing INC+ or DEC- without interrupting the charging process. This change is not stored. The next time you start charging, the charger takes the data settings of each charge profile, stored under "Settings".

DATA VIEW FUNCTION: during each process you can view additional data by pressing MENU button*. If afterwards no action is made the charger will jump to initial screen automatically after few seconds. You can also exit this screens manually simply pressing DEC- or INC+ button.

CHARGING PB BATTERIES: this charger is capable of charging also Pb batteries, but be careful, as these can not be fast charged. It is recommend to charge with 0.1C (10% of nominal battery capacity) if not mentioned differently. Follow the battery manufacturers guidelines when charging/using Pb batteries as wrong setting may damage your battery!

SOFTWARE UPDATE: the Quadra Competition V1 allows you to update it's software via the integrated USB port. For available updates and information check on www.LRPcc internet page.

USB CHARGE OUTPUT 5V/1A: simply plug in your USB device (mobile phone, etc.) with suitable cable and charge it directly from your charger.

RECOMENDED SETTINGS

Important: always follow the battery manufacturers recommendations first, our own recommendations should only be seen as a guideline for the most common battery packs!

Battery Type	Charger setting	Voltage / Cells	Charge Current	D-Peak	Trickle	Discharge current	Discharge Voltage
NiMH "Sport" packs (2200-3600mAh)	NiMH	7.2V / 6	4.0A	25mV	Off	5.0A	5.4V
NiMH "Race" packs (>3800mAh)	NiMH	7.2V / 6	5.0A	25mV	Off	5.0A	5.4V
NiMH "Rx" packs	NiMH	6.0V / 5	1.5A	15mV	Off	1.5A	4.5V
NiMH "Tx" packs	NiMH	8.4V / 8	1.0A	30mV	Off	1.0A	7.2V
LiPo 1S "Race" pack >6000mAh	LiPo	3.7V / 1S	8.0A	/	/	5.0A	3.2V
LiPo 2S "Race" pack >6000mAh	LiPo	7.4V / 2S	8.0A	/	/	5.0A	6.4V

For any other pack we suggest to charge with 1C* charge rate.

Caution: Make sure you always select correct settings (charging mode and pack voltage)!

Battery Type	Charger setting	Voltage / Cells	Charge Current	D-Peak	Trickle	Discharge current	Discharge Voltage
LiPo 3S "Sport" ~4000mAh	LiPo	11.1V / 3S	6.0A	/	/	5.0A	9.6V
LiPo 4S "Sport" ~2500mAh	LiPo	14.8V / 4S	3.8A	/	/	5.0A	12.8V
LiPo 2S "Sport" pack ~4000mAh	LiPo	7.4V / 2S	6.0A	/	/	5.0A	6.4V
LiFe 2S *low C* Rx/ Tx pack ~2000mAh	LiFe	6.6V / 2S	2.0A	/	/	2.0A	5.2V
LiPo 2S *low C* Rx/ Tx pack ~2500mAh	LiPo	7.4V / 2S	2.0A	/	/	2.0A	6.4V
LiPo 3S *low C* Tx pack ~3000mAh	LiPo	11.1V / 2S	2.0A	/	/	2.0A	9.6V

TROUBLESHOOTING

The Quadra Competition V1 is protected against faults and operator errors by the Multi-Protection-System. Error messages are displayed on the LCD screen and some may interrupt the charging process to protect the charger and the battery. The messages are as follows:

LCD MESSAGE	POSSIBLE CAUSES -> SOLUTION
Safety timer	Charging time-limit setting is reached -> re-adjust if needed
No balancer	Balancing not in use -> connect if needed
Pack is balanced	Voltage of each cell is even -> pack does not need balancing
Battery full	Battery completely full -> does not need charging
Check connection	Battery Voltage selection not correct >> check for Lixx Cell quantity
	No battery connection -> check connection and contacts
	Battery defective -> check single cells voltage of battery pack
Check Balancer	Voltage not set correctly -> re-adjust cell (pack) voltage

LCD MESSAGE	POSSIBLE CAUSES -> SOLUTION
Reverse polarity	Battery not connected correctly (+/-) -> re-connect with correct polarity
Voltage invalid	No voltage on balancer recognized -> check balancer connection
DC input low	Input voltage too low (<11.0V on DC input) -> check Input
DC input high	Input voltage too high (>18.0V on DC input) -> check Input
Int. temp high	Charger overheats -> check for sufficient cooling
Ext. temp. high	Battery temperature over the adjusted value -> check setting
High current	Internal problem -> re-connect (reset) the charger, load factory settings
Control fail	Internal problem -> re-connect (reset) the charger, load factory settings

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:

- Cut off/changed original input- and/or output-wires
- Mechanical damage of the case
- Humidity/Water inside the case
- Mechanical damage of electronical componentsPCB
- Soldered on the PCB

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.