



**Bedienungsanleitung
Operating instructions
Notice d'utilisation**

POWER PEAK INFINITY 2

No. 8294

1. Introduction

Dear customer, congratulations on your choice of the **POWER-PEAK INFINITY 2** automatic battery charging station from the robbe range. You now possess a high-performance micro-processor controlled charger with battery management facilities.

This charging station is very easy to use and control. Nevertheless, operating an automatic charger such as the **POWER-PEAK INFINITY 2** does call for some knowledge on the part of the user. These instructions are intended to help you become familiar with the unit quickly.

To ensure that you are able to exploit the charger's potential to the full, please read right through these operating instructions very carefully before you use your new automatic charging station for the first time. We hope you enjoy using your **POWER-PEAK INFINITY 2**, and we are confident that you will have good results with it over a long period.

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The **POWER PEAK INFINITY 2** is a battery charger with two outputs, designed for rapid-charging a flight pack or drive battery at the main charge output (Output 0.1 - 5A), and for simultaneously charging a transmitter or receiver battery at the second output (Tx-Rx 250 mA).

The main output is intended for recharging NC flight packs and vehicle drive batteries consisting of 1 to 30 cells. The cell capacity should be within the range 0.25 to 2.0 Ah, which covers most types used in modelling. This output can also be used to recharge lead-acid batteries of 2, 4, 6, 8, 10 and 12 volts.

The unit is designed to be powered by a 12 V lead-acid battery but can also be used with a well stabilised 12 V or 13.8 V mains power supply provided that it is powerful enough. Do not power the charger from a car battery charger.

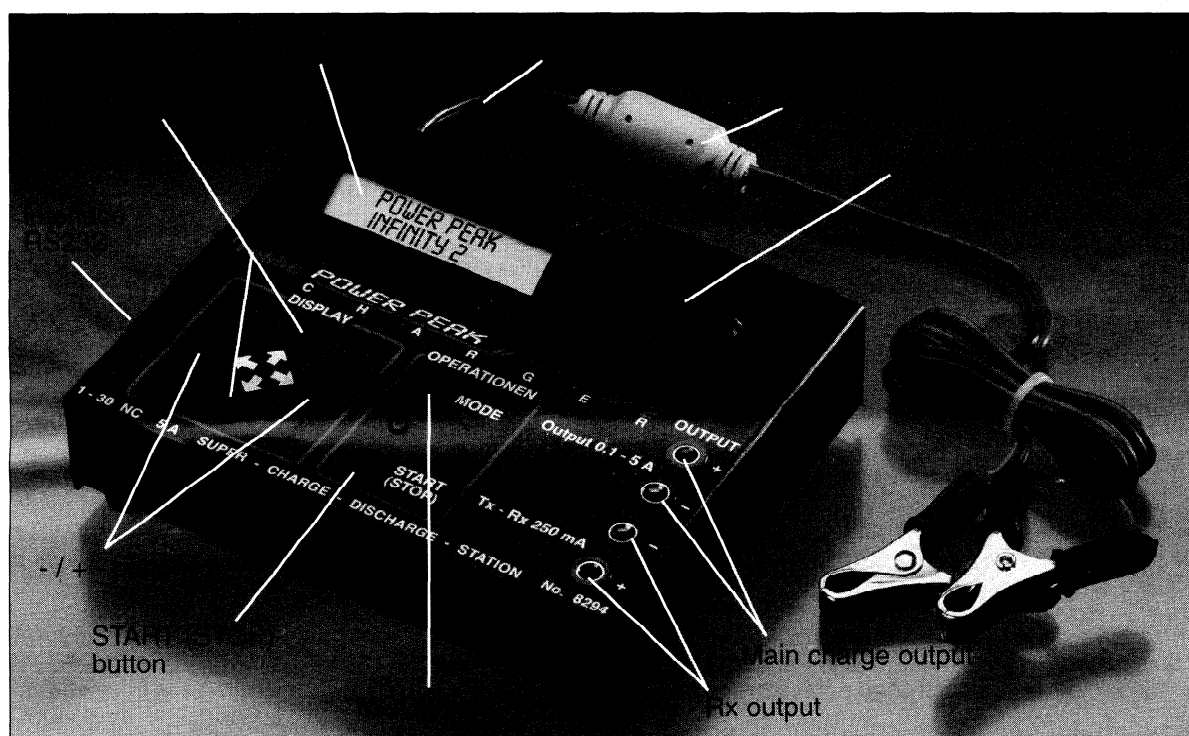
2. Specification

Operating voltage:	12 V car battery or well stabilised 12 V or 13.8 V mains power supply
Current drain:	max. 17 A (30 cells)
Rapid charge output	
No. of cells:	1 to 30 cells (1.2 to 36 V)
Maximum charge current:	up to 36 V: approx. 5 A above 36 V: 3 - 5 A
Maximum discharge current:	up to 9 V: 5 A above 9 V: 0.9 to 5 A (max. dissipated power approx. 45 W)
Trickle charge current:	0/50/100/150/200 mA, variable or automatic
Charge termination:	automatic, Delta Peak
Tx - Rx output	
No. of cells:	4 to 8 (4.8 - 9.6 V)
Charge current:	approx. 250 mA
Protective functions:	- reverse polarity (input and output) - short-circuit (output) - excess temperature guard - low voltage shut-down at approx. 9.5 V
Dimensions:	approx. 160 x 140 x 50 mm
Weight:	630 g (incl. cables)

3. Connections and controls

MODE button:	For selecting the five different modes of operation CHARGING MODE: Charges at currents within the range 0.1 A to max. 5 A DISCHARGING MODE: Discharges at currents within the range 0.1 A to max. 5 A CHAR -> DISC MODE: Up to 99 charge / discharge cycles DISC -> CHAR MODE: Up to 99 discharge / charge cycles LEAD BATTERY: Charges lead-acid batteries (2, 4, 6, 8, 10, 12 V) at max. 2 A current
START (STOP) button:	Starts and stops the charge / discharge process. Press once to select mode of operation. Press again to stop the process manually.
UP / DOWN buttons:	Leafs through screen displays. Press the UP button to move forward through the screen displays; press the DOWN button to move back.
-/+ buttons:	For adjusting and leafing through parameters. Press '+' to increase value, press '-' to decrease value

Main charge output:	Rapid charge output for charging and discharging 1 to 30 NC battery cells, or 2 to 12 V lead-acid batteries.
Tx-Rx output:	Charge output for 4-cell to 8-cell receiver or transmitter batteries.
Screen:	Displays set parameters; also displays charge values during charging and discharging.
Cooling fan:	Cools the charger. Never cover the fan opening!
Power supply input:	For connection to a 12 V car battery or a powerful 12 V mains power supply.
Ferrite ring:	Reduces interference radiation (IEC)



4. Using NC batteries

In the modelling world Nickel-Cadmium (NC) batteries have become virtually the standard method of powering radio control equipment and electric power systems. These energy sources are extremely easy to maintain and very reliable. Even so, there are a number of basic rules which must be observed when handling these batteries; keep to the rules, and they will reward you with a long useful life and maximum possible capacity.

A new pack, or one which has not been used for a long period, must be 'balanced' before use, i.e. all cells brought slowly to the same state of charge. The same applies to a pack which has been deep-discharged, in which the polarity of one or more cells may be reversed. Packs in this condition also need to be balanced before re-use. A pack is balanced by charging for about 24 hours at the current which corresponds to 10% of its nominal capacity (charge rate 0.1 C).

We have to differentiate between normal (slow) and rapid charging of NC batteries. The standard charge rate (C) is now in general use to define charge currents and discharge currents related to battery size: it represents the relationship between the charge current and the battery capacity. For example, if you want to charge a battery with a capacity of 600 mAh using a charge rate of '1 C', then you must set a charge current of 600 mA.

The term slow (or normal) charging covers the charge rates 0.1 - 0.2 C.

An accelerated charge involves the use of a charge current of 0.3 - 0.5 C. The term rapid charging is generally applied to any process in which the charge current is higher than those already stated. If you wish to use a charge rate higher than 0.1 C, the charge process must be carefully monitored and switched off at the correct time, i.e. as soon as the pack is fully charged. This in turn calls for the use of a charger such as the **POWER PEAK INFINITY 2**, which is capable of switching off the charge current automatically when the pack is full.

The best known method of charge termination is the Delta Peak principle. This requires the charger to monitor the voltage of the battery constantly, so that it can detect when the pack is fully charged and switch off the current at that point. Not all NC batteries are capable of being rapid-charged. This applies in particular to the packs used for transmitter and receiver batteries, which generally consist of cell types which are optimised for maximum capacity. The maximum charge current for this type of battery is limited to a fairly low level.

Before you set the charge current it is important to check that it does not exceed the limit for the type of battery in use.

Nickel-Cadmium batteries lose about 1% of their charge every day, which means that a fully charged pack will be completely flat after about 100 days in storage. This characteristic clearly implies that NC batteries must be charged up before each session.

If you know that you will not use a particular battery for a long period, it is better to discharge it and then store it in cool, dry conditions. It can then be restored to almost full capacity simply by balancing the pack, i.e. giving it a single slow charge.

When using NC cells a number of safety measures must be observed, otherwise you run a real risk of causing personal injury and damage to property.

- NC cells must never be brought into contact with open fire, as they may explode.
- Never forcibly open NC cells as they contain corrosive chemicals.
- Never short-circuit the terminals of NC cells; fire and explosion hazard.
- A charged NC pack is not a toy. Keep such batteries well out of the reach of children.

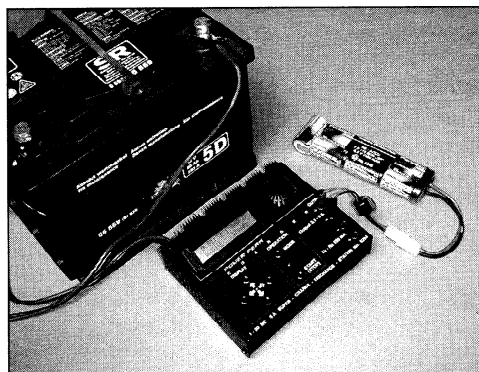
NC batteries constitute toxic waste, and you should never dispose of them in the ordinary household rubbish. If you have a faulty or exhausted pack, **discharge** it completely, then hand it in to your local collection point in order to protect the environment. This can be your local toxic waste collection centre or any battery dealer. These dealers are obliged to accept batteries whether you purchased them there or not.

The batteries are then re-cycled, and the material is returned to the production process. Thus the toxic heavy metal does not reach the environment, and you have made your contribution to environmental protection.

5. The charger in use

When you wish to use the **POWER PEAK INFINITY 2** it is very important to keep to the sequence of operations described below:

- First connect the crocodile clips to a 12 V lead-acid battery. Take great care to maintain correct polarity (red = positive, black = negative). The screen should now display the message 'robbe Modellsport / **POWER-PEAK INFINITY 2**'. If not, either you have connected the crocodile clips with reversed polarity, or the input voltage is too low.
- Connect the charge lead to the banana sockets on the charger, taking care to select correct polarity (red = positive / black = negative). Now connect the NC battery with correct polarity. Caution: read the notes regarding IEC requirements.



Connecting the charger to the car battery, connecting a flight or drive battery to the charger

6. The menu structure of the INFINITY 2

Before you start charging or discharging a battery, you should make yourself familiar with the charging station's menu structure. The first step is always to select the correct mode of operation for the process you wish to carry out.

Modes of operation

As mentioned in the earlier explanation of the charging station's controls, the 'MODE' button is used to select the mode of operation before you start to use the charger. The following modes are available:

CHARGING MODE:	Charges at a current within the range 0.1 A to max. 5 A. This is the most important mode, and this is the one you will use to rapid-charge your flight packs and drive batteries.
DISCHARGING MODE:	Discharges at a current within the range 0.1 A to max. 5 A; for checking the capacity of a battery.
CHAR => DISC MODE:	Charges a battery, then discharges it to balance the cells; up to 99 charge / discharge cycles.
DISC => CHAR MODE:	Discharges a battery, then charges it to balance the cells; up to 99 discharge / charge cycles.
LEAD BATTERY:	Program for charging lead-acid batteries with nominal voltages of 2 to 12 V; max. charge current 2 A.

Each of the **POWER PEAK INFINITY 2**'s operational modes has an associated screen display which appears for a short period after you press the 'Mode' button to select a new mode. Examples of these displays are shown in the detailed explanation of the individual operational modes. It is not possible to alter the mode of operation while a charge or discharge process is actually in progress.

Screen displays

The settings and measured results for the current charge process are displayed on a large, two-line screen showing 16 characters per line. The UP/DOWN keys are used to leaf through the various screen displays.

Parameters which the charger simply displays (for information) are marked by two alternating arrows '↑' and '↓'. In contrast, those settings which the user can change using the '+/-' buttons are marked by constantly alternating '+' and '-' symbols. These special symbols always appear at the end of the line.

Each screen display includes a status symbol in the right-hand corner which informs you of the current status of the **POWER PEAK INFINITY 2**.

These status symbols are shown in the sample screen displays printed in these instructions. The meaning of the symbols is described in full in the next section.

The following section describes and explains the most important screen displays.

We have to differentiate here between working displays and information displays: working displays show all the essential data at a glance, whereas an info display shows greater detail: the current operational values during the charge process, and the parameters you have set during the programming process. The info display appears when you press one of the four screen buttons.

1. Working display:

```
0:34:45  4,24A C
18.73 V  +2456mAh
```

The working display appears on the screen when you press the 'START' button, and it shows all the

most important information on a single screen.

The example here is typical, and shows that the charge process has been running for 34 minutes and 45 seconds, and that the charge current is presently 4.24 A; the battery voltage is currently 18.73 V, and up to now a total of 2456 mAh has been charged into the pack.

The battery is still being charged (status display C).

The working screen is retained even after the program has ended. When an NC charge program comes to an end (status symbol 'F') the screen shows the battery voltage when the charge was terminated; in all other modes of operation the screen shows the present voltage.

If you press the Stop button during the charge/discharge process, the info screen appears.

2. Info display:

In the interests of clarity our explanations of the info displays only show one line of information at a time, although the **POWER PEAK INFINITY 2** always provides the user with two items of information simultaneously, one on each line.

```
INPUT  13.24V ↑
                                     N
```

(N).

Display of input voltage. The voltage is currently 13.24 V. No battery is connected

```
TX&RX  10.67V ↑
                                     C
```

10.67 V. The battery at the main output

continues to be charged (C).

```
OUTPUT 18.27V ↑
                                     C
```

ge is currently 18.27 V. The battery continues to be charged (C).

Display of voltage of the battery connected to the main charge output. The voltage is currently 18.27 V. The battery continues to be charged (C).

```
M1 CH. 1238mAh +
                                     -
```

of five values (M1), and you can see that the charger has fed 1238 mAh of energy into the pack. You can leaf through M1 to M5 using the +/- buttons. The 5 memory spots are erased when you connect a new battery.

Display of the last five charged-in capacity values. The screen shot shown here is displaying the first

```
M3 DC. 1167mAh +
                                     -
```

five values (M3), and you can see that the charger has removed 1167 mAh of energy from the pack. You can leaf through M1 to M5 using the +/- buttons. The 5 memory spots are erased when you connect a new battery.

Display of the last five discharged capacity values. The screen shot shown is displaying the third of

```
PEAK   12.18V ↑
                                     C
```

Display of maximum battery voltage on charge under zero-current conditions. The value is currently 12.18 V. The battery continues to be charged (C).

```
C.TIME 00:18:45 ↑
                                     C
```

at this point 18 minutes and 45 seconds have elapsed since the start of the charge process. The battery continues to be charged (C).

Display of charge time in hours, minutes and seconds. At

```
D.TIME 00:36:23 ↑
                                     D
```

start of the discharge process. The battery continues to be discharged (D).

Display of discharge time in hours, minutes and seconds. At this point 36 minutes and 23 seconds have elapsed since the

CYCLE No. 14 ↑
C/D,C

Display of the current cycle during a balancing process. At present the 14th

cycle is in progress. The battery is currently being charged in CHAR => DISC mode (C/D, C).

3. Variable parameter displays

The purpose of these displays is to provide information when you are programming the charge parameters. At the end of the line you will see alternating '+' and '-' symbols, which indicate that you can alter this value using the '+' or '-' button.

However, you can only ever change the parameter in the top line of the screen.

== BUZZER == +
-

Display for switching the piezo buzzer on and off. Press the '+' or '-' button to reverse the setting.

= NO BUZZER = +
-

D.P. NORMAL +
-

Display for toggling Delta Peak sensitivity between 'normal' and 'sensitive'. If you select 'sensitive', the charger terminates the charge slightly earlier than when 'normal' is set. Press

D.P. SENSITIVE +
-

the '+' or '-' button to change the setting.

MANUAL CUR.SET +
-

Display for selecting manual or automatic current setting. If you set 'AUTOMATIC C.S.', the screen shows 'AUTO' in the 'SET CHAR', 'SET DISC', 'S.DC CUT' and 'S.M.CUR' displays instead of the

AUTOMATIC C.S. +
-

variable parameter; the automatic circuit sets the correct values for you.

SET CHAR 4.00A +
-

Display for setting the charge current within the range 0.1 A and max. 5 A, using the '+'/'-' buttons. The current presently set is 4.00 A. Press the '+' or '-'

button to change the charge current.

The charger is ready for use; the charge process can be started by pressing the 'START-STOP' button.

If you have selected Automatic mode, you cannot set the charge current manually.

Note: in any case the charger will not allow you to change the current setting in the period shortly before the Delta Peak charge termination trips.

SET DISC 2.50A +
-

Display for setting the discharge current within the range 0.1 A to max. 5 A,

using the '+'/'-' buttons. The discharge current presently set is 2.50 A. The charger is ready to use; the discharge process can be started by pressing the 'START-STOP' button. In Automatic mode the software calculates and sets the optimum discharge current for you.

S.DC.CUT 7.86V +
R -

Display for setting the final discharge voltage within the range 0.01 V to 50 V, using the '+'/'-' buttons.

The value presently set is 7.86 V. The charger is ready to use; the discharge process can be started by pressing the 'START-STOP' button. In Automatic mode the software calculates and sets the optimum final discharge voltage for you.

S.M.CUR. 100mA +
-

Display for setting the trickle charge current using the '+'/'-' buttons; the possible values are 0, 50,

100, 150 and 200 mA. The value presently set is 100 mA. In Automatic mode the software calculates and sets the optimum trickle charge current for you.

S.PAUSE 3 MIN +
R -

Display for setting the pause between charge / discharge phases in cycle mode; possible times

are within the range 0 to 10 minutes. The value presently set is 3 minutes. The charger is ready to use; the charge process can be started by pressing the 'START-STOP' button.

You can 'leaf through' the individual screen displays shown here in both directions, i.e. forwards and backwards. Pressing the bottom display button writes the parameters from the bottom line of the screen to the top line; in the top line you can change the settings to your preferred values. Press the top button to switch the screen back, i.e. to move the previous parameter back to the top line.

All screen displays are arranged in an endless loop.

Status symbols

It is clearly important that you are aware of the current status of the **POWER PEAK INFINITY 2** at all times, and you can check this by looking at the symbols displayed in the right-hand corner of the screen. The list below is a brief key to these symbols.

N	No battery connected.
R	Charger ready, battery connected; you can start the selected mode by pressing the 'START-STOP' button.
C	Battery being charged
D	Battery being discharged
d/c,d	Discharging in DISC=>CHAR mode
d/c,c	Charging in DISC=>CHAR mode
c/d,c	Charging in CHAR=>DISC mode
c/d,d	Discharging in CHAR=>DISC mode
F	Finished: selected process completed
W	Wait: pause in cycle mode

Supplementary display messages

In order to make the charger as easy as possible to operate, the screen displays additional messages which keep you informed of the unit's activities.

However, the screen also provides warning messages, alerting you to irregularities which may occur when the charger is in use.

In the various operational modes messages appear which are almost identical, so each one is only explained once in the following section.

**READY
PRESS (START)**

start the charge or discharge process.

This display appears as soon as the charger is ready to use, and a battery is correctly connected. You are invited to

**START
CHARGING**

ton. It signals to the user that the **POWER PEAK INFINITY 2** has begun charging.

A similar message also appears once the currently selected activity has begun in one of the other operational modes. In the second line you will see 'DISCHARGING', 'CHARGE/DISCHARGE' or 'DISCHARGE/CHARGE', depending on the selected mode.

When you press the 'START' button the cooling fan starts running in order to dissipate the heat which the charger develops. The buzzer also sounds twice at this time.

**CHARGE
COMPLETED**

This display appears as soon as the automatic charge termination circuit ends the charge process.

The same message appears at the appropriate point in the other modes of operation. In the first line the screen shows 'DISCHARGING', 'CHARGE/DISCHARGE' or 'DISCHARGE/CHARGE', depending on the selected mode.

Error messages

**NO BATTERY
INSERT BATTERY**

to re-connect the battery. The display also appears if you press the 'START' button without connecting a battery.

This message appears if the battery is disconnected when the charger is in the 'R' state; it invites you

**OVERLOAD
PROTECTION**

order to allow the charger to cool down. The **POWER PEAK INFINITY 2**'s software detects excessive temperature in the output stage, and interrupts the charge or discharge process to allow it to cool down. This message appears at that time.

This screen message alerts you to the fact that the charger has interrupted the current activity in

**INPUT BATTERY
LOW VOLTAGE**

has fallen below 9.5 V; the charger has interrupted the charge or discharge process. This message stays on the screen until you eliminate the cause of the problem and press any button.

This display indicates that the input voltage of the car battery or mains PSU

**OUTPUT BATTERY
REVERSE POLARITY**

This error will not cause damage to the **POWER PEAK INFINITY 2**, but in this situation it cannot carry out a charge process. First you must re-connect the battery with correct polarity, then you can remove the message by pressing any button.

The next message is the charger's warning that the battery to be charged is connected with reverse polarity.

**CHECK THE BATT.
OPEN CIRCUIT**

stays on the screen until you eliminate the cause of the problem and press any button.

This message appears if you disconnect the battery during the charge or discharge process. It

The same message also appears if there is an intermittent contact in the charge lead.

**CHECK THE BATT.
SHORT CIRCUIT**

on the screen until you eliminate the cause of the problem and press any button.

This message indicates a short-circuit which persists for longer than one minute. It also stays

**CHECK THE BATT
LOW VOLTAGE**

ge incorrectly. It stays on the screen until you enter the cor-

This note appears when you connect a lead-acid battery and set the nominal voltage

rect voltage for the lead-acid battery, and press any button.

BACKUP MEMORY ERROR

This is an indication that a problem has occurred during the parameter setting process.

In this case you must 'reset' the charger by disconnecting it from the power supply, and then re-connect it.

All the error messages stay on the screen until you press a button; they then remain on the screen for a further three seconds. This comprehensive set of screen displays keeps you constantly informed of the state of your **POWER PEAK INFINITY 2**.

7. Charging transmitter and receiver batteries

The **POWER PEAK INFINITY 2**'s Tx-Rx 250 mA output is designed to charge receiver and transmitter batteries consisting of 4 to 8 NC cells.

The charge current is fixed at approximately 250 mA. There is no automatic Delta Peak charge termination circuit on this output, so it is up to the user to calculate the charge period required.

To calculate the charge time in hours use this formula:

$$\text{charging time (h)} = 1,4 \times \text{capacity of battery (mAh)} / 250 \text{ (mA)}$$




Once you have connected the charger to the car battery or mains PSU with correct polarity, you will see the two Start displays alternating briefly on the screen.

Press any button, and the Start display will disappear; you can then move on to the Setting display.

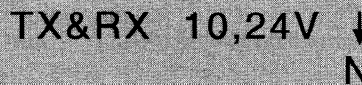
If the Start screen does not appear, then either you have connected the voltage source with reverse polarity, or the power supply voltage is too low. You must eliminate this fault immediately.

Ensure that the **POWER PEAK INFINITY 2** is always connected to a fully charged car battery with plenty of reserve capacity, or to a well stabilised 12 V or 13.8 V mains PSU of adequate power.

We recommend a **POWER MAINS UNIT** from our range, e.g. Order No. 8334 or 8335.

With the charger correctly connected to its power source, connect a suitable charge lead to the charger's Tx-Rx output, and then to the transmitter or receiver charge socket.

The charge process begins when you connect the battery.



While the battery is being charged, you will see the message 'TX&RX' on the screen, together with the

current voltage of the transmitter or receiver battery. The typical display here shows a transmitter battery on charge; battery voltage is currently 10.24 V.

If you wish to charge a transmitter battery installed in a transmitter which is fitted with a protective diode, you will need to by-pass the diode; alternatively you can remove the battery from the transmitter for charging. It is also important to check that the cable conductors and the connectors fitted to the transmitter and receiver batteries can cope with the charge currents you intend to use. It is possible to charge a transmitter or receiver battery and charge a flight pack or drive battery at the same time, i.e. both outputs can be used simultaneously.

8. Charging flight packs and drive batteries

If you wish to recharge a flight pack or drive battery using the **POWER PEAK INFINITY 2**, the initial procedure is exactly as described in the previous section: first you connect the charger to the power supply, then connect the pack to be charged, then select the mode of operation using the 'MODE'

button. To rapid-charge a flight pack or drive battery you should select the 'CHARGING MODE'.



At this stage you can set the variable parameters, e.g. the charge current (see variable parameter displays), or simply select automatic mode. Please refer to the battery manufacturer's stated range of permissible charge currents. The actual charge process is started by pressing the 'START-STOP' button. After a minute the charger switches off the current for a period of about 5 seconds, so that it can measure the pack's voltage under zero-current conditions.

The end of the charge process is indicated by an appropriate message on the screen ('F'), and - if the buzzer is switched on - by an audible signal. You can also interrupt the charge process manually at any time by pressing the 'START-STOP' button.



Please don't disconnect the battery while the charge process is in progress. If you wish to interrupt the process, first press the 'START-STOP' button, otherwise the error message already mentioned ('OPEN CIRCUIT') will appear.

All 'battery data', e.g. the charged-in capacity and the maximum battery voltage (PEAK), is stored by the charger after you disconnect the battery, and is retained until either you disconnect the charger from its power supply, or you connect a new pack to it. The variable parameters you have set are retained even after the power supply is interrupted, i.e. next time you use the charger the last used parameters will be available again.

Please note that the potential maximum charge current of 5 A varies according to the number of cells in the pack (see Specification).

A pack which is already fully charged will have a high internal resistance, and in automatic mode it will only be charged at a very low rate.

If you encounter problems when attempting to use automatic current setting with some older types of battery, we recommend that you charge them with a manually set current.

9. Discharging / Balancing batteries

The procedure for setting up the **POWER PEAK INFINITY 2** ready for use has already been described in the preceding sections. If you wish to discharge a battery, first connect the

**DISCHARGING
MODE**

pack to the charger, then press the 'MODE' button until the 'DISCHARGE' mode is selected.

**SET DISC 1.50A +
R -**

Now you can set the variable parameters such as the discharge current and the final discharge voltage, or simply select the automatic mode. Please observe the permissible currents stated by the battery manufacturer.

The discharge current can be selected within the range 0.1 A to 5 A. It is important to check that the cable conductors and the connectors fitted to the transmitter and receiver batteries can cope with the discharge currents you intend to use. A useful guide value for final discharge voltage is 0.85 V/NC cell.

Press the 'START-STOP' button to start the discharge process.

The end of the discharge process is indicated by an appropriate message on the screen, and - if the buzzer is switched on - by an audible signal.

**DISCHARGE
COMPLETED**

You can also manually interrupt the discharge process at any time by pressing the 'START-STOP' button.

**M1 DC. 1238mAh +
-**

When the discharge process is completed the screen displays the capacity removed from the pack.

This value can be used as an accurate basis for drawing conclusions about the general condition of a pack, and allows you to check the state of your batteries at regular intervals.

As with charging, you should not disconnect the battery when it is being discharged without first pressing the 'START-STOP' button, otherwise you will see the corresponding error message.

The measured values, e.g. the discharged capacity, are stored by the charger after you disconnect the battery, and are retained until either you disconnect the charger from its power supply, or you connect a new pack to it.

As in the case of a charge process, the variable parameters you have set for a discharge process are retained even after the power supply voltage is disconnected.

Please note also that the maximum discharge current varies according to the number of cells in the pack. The **POWER PEAK INFINITY 2**'s software ensures that the maximum discharge power (see Specification) is not exceeded.

The **POWER PEAK INFINITY 2** provides facilities for maintaining NC packs, i.e. for balancing new batteries, and also for reviving the performance of old packs.

This is the purpose of the two operational modes 'CHARGE=>DISCHARGE' and 'DISCHARGE=>CHARGE'.

In 'CHAR=>DISC' mode the battery is first charged and then discharged, in order to balance the state of charge of the cells. You can set the

**CHAR -> DISC +
10TIME -**

POWER PEAK INFINITY 2 to carry out up to 99 charge/discharge cycles using the '+/-' buttons, provided that the display shown here is on the screen. In our example the charger is set to give 10 cycles.

**DISC -> CHAR +
5TIME -**

If a fully charged battery is to be balanced, you must select the 'DISC=>CHAR' mode, so that the charger starts by

discharging the pack.

**S.PAUSE 2 MIN +
R -**

range 0 to 10 minutes. In our example the interval has been set to 2 minutes.

During that period the screen shows 'PAUSE TIME', and the set time counts down towards zero. At the same time the number of the cycle which is currently running is shown in the Info display as 'CYCLE NO'.

**D.TIME 00:45:26 ↑
D**

Our example shows a discharge process in progress. The discharge has already lasted 45 minutes and 26 seconds, and

the battery continues to be discharged.

The most important parameters are shown in the working display for these processes too, with the purpose of providing you with all the essential information at a glance.

```
0:58:45  2,14A D
8,73 V   -2095mAh
```

Our illustration shows the values for a discharge process which has lasted just on one

hour. The battery is being discharged at a current of 2.14 A, and up to now more than 2 Ah has already been removed from the pack. The battery voltage is currently 8.73 V.

To differentiate between charged-in capacity (+) and discharged capacity (-) the screen shows the prefix '+' or '-' before a capacity statement. The last letter in the top line ('C' or 'D') indicates whether the charge is presently carrying out a charge (C) or a discharge (D) process.

These two operational modes provide you with the means to check and maintain your batteries simply and efficiently. The unit stores and displays the last five charged-in or discharged capacity values, allowing you to draw direct conclusions about the general condition of the pack in question.

ThePOWER PEAK INFINITY 2 features a voltage converter which works in both directions (up and down), and it is this which makes it possible to charge and check 1 - 30 cells. This facility makes thePOWER PEAK INFINITY 2 the ideal unit for measuring and selecting individual battery cells.

10. Charging lead-acid batteries

ThePOWER PEAK INFINITY 2 charger can also be used to recharge all the types of lead-acid batteries commonly used in modelling. The first step is to select the 'LEAD BATTERY' mode of operation. The charge current is fixed, and the maximum rate is 2 A. This mode can be used to charge lead-acid batteries with voltages ranging from 2 V to 12 V.

The nominal voltage of the lead-acid battery to be charged must first be set using the '+/-' buttons, and this parameter

```
LEAD BATTERY +
12V 2A FIX -
```

can be selected as long as the display shown above is on the screen. No further adjustments are

possible or necessary. The 'LEAD BATTERY' mode is indicated by a 'P' before the status symbol.

The charge process is completely automatic, and the voltage of the lead-acid battery is constantly monitored. Lead-acid batteries are fully charged at a voltage of about 2.3 V per cell, and at this point the charger switches off the current.

The working display also shows the essential information when a lead-acid battery is on charge. This screen shot shows that a lead-acid battery has been on charge at 2 A for more than 28 minutes.

```
0:28:15  2,00APC
12,93 V   + 942mAh
```

Up to this point almost 1 Ah has been charged into the battery, and the battery voltage is

currently 12.93 V. The battery continues to be charged.

This option allows you to use thePOWER PEAK INFINITY 2 to recharge a 12 V starter battery from your car battery at the

flying site, and there are many other uses for this facility.

It is also possible to discharge lead-acid batteries in Discharge mode.

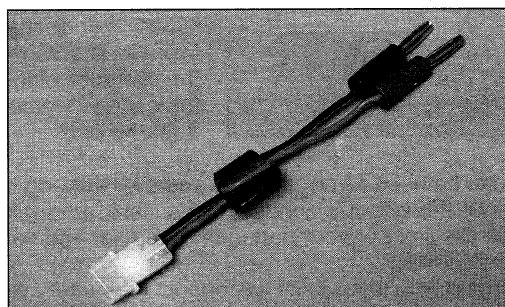
11. Safety notes

- The charger can become quite hot when running.
- Disconnect the charger from the power source if it is not to be used for a long period. Disconnect any batteries from it at the same time.
- Set up the unit on a hard surface (not carpet or felt) before using it, so that its cooling slots are unobstructed for good air circulation.
- Do not place the charger or batteries on a flammable surface when in use, and never leave the charger running unsupervised.
- Protect the unit from damp.
- Take care to ensure correct polarity of the outputs.
- Avoid short-circuits.
- Do not connect a battery to the RS 232 serial port.
- Do not subject the charger to direct sunshine.
- Do not attempt to recharge any battery which is already hot. Allow packs to cool down to ambient temperature first.
- NC batteries must consist of cells of the same capacity, make and type.
- Do not charge two batteries in parallel.
- Keep to the battery manufacturer's recommendations.
- Suitable only for use with rechargeable batteries.

12. Interference emission (IEC)

To keep within the IEC regulations, and to ensure that the **POWER PEAK INFINITY 2** functions safely and reliably, the charge lead must be modified before using the charger.

Run the charge lead twice through the ferrite ring as shown in the picture below.

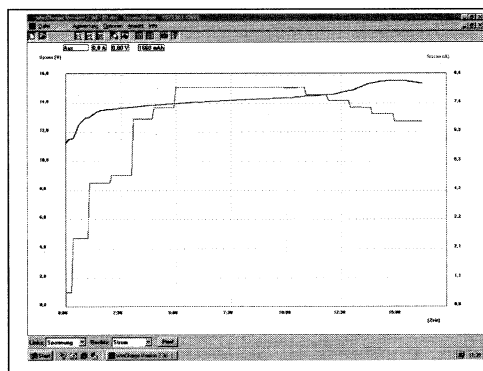


13. WINCHARGE V1.0

An RS 232 cable can be connected to the serial port on the left-hand side of the charger in order to transfer data to a PC. The transfer lead and 'WINCHARGE V1.0' software are available under Order No. 8066.

With this program you can create, save, analyse and print out charge and discharge graphs. The following values can be displayed in graphic form:

- charge voltage
- charge current
- charged-in capacity
- discharged capacity
- input voltage
- voltage at Tx-Rx output
- time axis



Our example shows the parameters. You can continue to use the PC while data is being measured and transferred.

The system
require-

ments are quite modest: the program runs well on a 40 MHz 386 PC, and the operating system can be Windows (R) 3.11 or Windows (R) 95/98.

robbe Modellsport GmbH & Co. KG

We reserve the right to alter technical specifications.

For your notes

[illegible]