

# Common Sense RC Cell Spy 8 User Guide and Manual - #CELLSPY8

Battery Voltage Capacity Checker / Balance Discharger / Servo Tester

## 1. INTRODUCTION

The Common Sense RC Cell Spy 8 is a clever device that can show you the condition of your battery packs while also serving as a battery balancer and servo tester.

It can be used with the most common battery types used for RC modeling:


- Li-Ion (Lithium Ion)
- Li-Po (Lithium Polymer)
- Li-Fe (Lithium Ferrite)
- NiCd (Nickel Cadmium)
- NiMH (Nickel Metal Hydride)
- Li-HV (High Voltage Lithium Polymer)


For Lithium battery types (Li-Po, Li-Ion, Li-Fe, Li-HV), the Cell Spy 8 can support 2S-8S without the need for an additional power supply. To test 1S Lithium batteries, you need to also connect more than 3S of Nickel batteries or a 5V UBEC to the NiCd/MH port to provide enough voltage for the Cell Spy 8 to power on, then press the TYPE/SETUP MENU button to select the correct battery type.

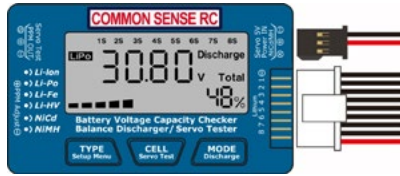
For Nickel battery types (NiCd or NiMH), the Cell Spy 8 can support 4S-8S without the need for an additional power supply. If you need to test less than 4S of Nickel batteries, you need to connect a 2-8S Lithium battery to the 9-pin/Lithium port to provide enough voltage for the Cell Spy 8 to power on.

## 2. CONNECTING A BATTERY PACK

There are two battery connection ports:

**Lithium battery:** The 9-pin/Lithium battery port has 9 pins with standard 2.54mm spacing. The balance plug of your Lithium battery should be plugged into this port with the outside negative (black) wire aligned with the  symbol on the Cell Spy 8.

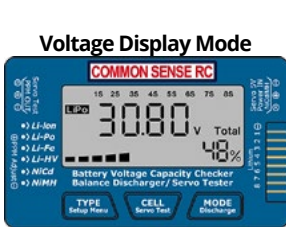
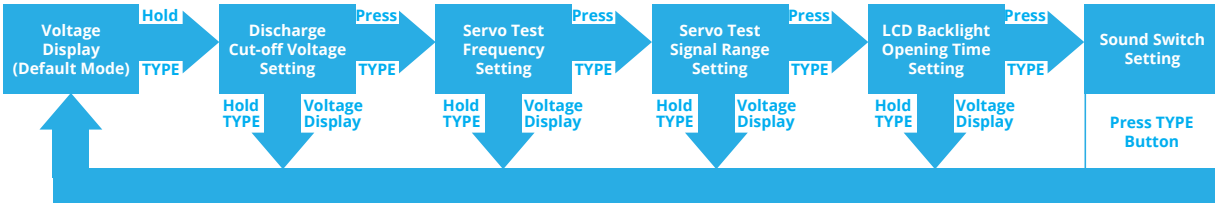
**Nickel battery:** The Nickel battery port is labeled Servo 5V Power IN NiCd/MH. It has 3 pins with 2.54mm spacing, designed for receiver/servo type plugs. The main leads of the Nickel battery receiver pack generally has 2 wires. The connector should be plugged into this port with the negative (black) wire aligned with the  symbol on the Cell Spy 8.



**Lithium Battery and Nickel Battery Connection Diagram**  
(Can simultaneously connect Lithium battery and Nickel battery)

## 3. PARAMETER SETTINGS

The Cell Spy 8 allows you to adjust certain parameters for battery and servo testing, including discharge end voltage, servo signal range, and more. To enter Parameter Setting Menu, connect a battery to the Cell Spy 8, then press and hold the TYPE/SETUP MENU button for 1 second. Press the CELL/SERVO TEST button to reduce the parameter, or press the MODE/DISCHARGE button to increase the parameter. Press the TYPE/SETUP MENU button again to advance to the next parameter setting. Press the TYPE/SETUP MENU button again to advance to the next parameter setting.

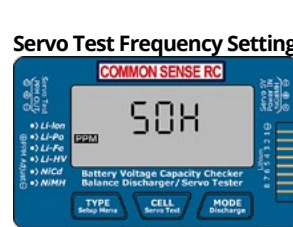


Voltage Display Mode



Discharge Cut-off Voltage Setting

Discharge Cut-off Voltage Setting Range: 2.000~4.200V



Servo Test Frequency Setting

Servo Test Frequency Setting: 50Hz, 60Hz, 100Hz, 125Hz, 200Hz, 250Hz, 300Hz



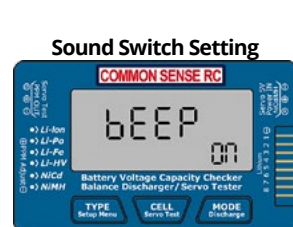
Servo Test Signal Range Setting

Servo Test Signal Range Setting: 500~2500us, 1000~2000us



LCD Backlight Opening Time Setting

LCD Backlight Opening Time Setting: Off, 10s~60s, On



Sound Switch Setting

Sound Switch Setting: On, Off

#### 4. LITHIUM BATTERY DETECTION MODE

Connect your Lithium battery to Cell Spy 8's 9-pin/Lithium battery port. The LCD screen will power on and display the number of Lithium cells, total battery voltage, battery type detected, and the charge state of the battery as a percentage. The charge state of the battery is also represented by the strip pattern at the bottom of the screen. The percentage and strip pattern will change in accordance with the battery type if the battery type is manually switched.

Press the TYPE/SETUP MENU button to switch between Lithium battery types (Li-Po, Li-Ion, Li-Fe, Li-HV). The Cell Spy 8 has a smart detect feature for Lithium cells. If the voltage of any cell is higher than 3.6V, the display will not switch to Li-Fe. If the voltage of any cell is higher than 3.6V, the display will not switch to Li-Ion.

Press the CELL/SERVO TEST button and the display will switch from the total voltage of the battery to displaying the individual cell voltages. Press the MODE/DISCHARGE button to switch back to the total voltage of the battery.

Hi/Low Voltage Check: Press the MODE/DISCHARGE button and the display will show the reading for the highest voltage cell in the pack. Press the MODE/DISCHARGE button again and the display will show the reading for the lowest voltage cell in the pack. Press MODE/DISCHARGE button a third time and the voltage difference between the highest and lowest cells will be displayed.

#### 5. NICKEL BATTERY DETECTION MODE

For Nickel based batteries, the Cell Spy 8 will only show the total readings for the battery, not the individual cell voltages. After connecting the battery to the NiCd/MH/3-pin port, press the TYPE/SETUP MENU button to toggle between NiMH and NiCd types. You must also select the correct cell count using the CELL/SERVO TEST button to toggle between 4S (4.8V) through 7S (8.4V) batteries.

#### 6. LITHIUM BATTERY DISCHARGE AND BALANCE MODES

Connect the battery's balance connector to the 9-pin/Lithium port, then press and hold the MODE/DISCHARGE button to enter Discharge mode. The battery will then discharge until all cells reach the pre-set discharge voltage (Default value: 3.700V per cell). The Cell Spy 8 will beep when this process is complete. Please be sure to disconnect the battery when this process is complete, as the power used to operate the LCD display will continue to slowly discharge your battery and could lead to over-discharge if left unattended.

During discharging, press the MODE/DISCHARGE button to enter Balance mode. In this mode, all cells will simply be discharged until they are equal to the lowest voltage cell in the pack.

#### 7. SERVO TEST MODE

To power the Cell Spy 8 for servo testing, connect a 4S NiMH or NiCd battery to the servo 5V Power IN port, then connect your servo to the Servo Test PPM OUT port. **Caution: using higher voltage batteries for servo testing may damage your servo.**

Hold the CELL/SERVO TEST button to enter Manual Testing mode. In this mode, the position of the servo is changed by the user via the PPM Adjust wheel. The adjustment range is 500~2500uS or 1000~2000uS, depending on which settings you select during setup.

Press the CELL/SERVO TEST or MODE/DISCHARGE buttons again to enter Automatic mode. In this mode, the servo will move from the maximum to minimum PPM setting continuously, and the user can adjust the speed of the cycles using the PPM Adjust wheel.

Press the CELL/SERVO TEST or MODE/DISCHARGE buttons again to enter Midpoint mode. In this mode, the servo will center itself (1500uS signal).

#### 8. EXAMPLES OF LCD DISPLAY IN VARIOUS MODES

