



Empowering Your Digital Life.

### **MH-C204W - A Revolutionary Charger Redesigned from the Ground Up**

What do you do when you want to launch the successor to a already successful product? You listen. You listen to your customers. That's exactly what we did when we designed the MH-C204W One Hour International Conditioning Charger.

We surveyed our customers, as well as put ourselves in the shoes of both casual and professional users. We discovered that they had many desires that were not directly addressed by manufacturers. Most manufacturers are caught up in improving the specs and making their product look good on paper. But what are the features that customers *REALLY* care about? We have learned a great deal by talking to current and perspective customers. Here is what they told us:

- I really want a charger that will fit in my camera bag. Not a charger that needs its own bag.
- I want a charger I can take anywhere in the world without having to carry a transformer.
- I want a reliable charger that charges my batteries fully when the lights turn green.
- I want to be able to charge batteries that I haven't used for a few months and not have to throw them away.
- I want a reliable charger that always works.

So we decided to address each of these needs.

### **COMPACT & LIGHT WEIGHT**

The MH-C204W does not require an external power brick which significantly reduce its dimensions. This charger is about the size of a regular consumer digital camera. The charger weighs about 4 oz. and the AC cord is only 3.5 oz. This is about 70% lighter than the competition! We also decided not to make a "foldable plug" design that is popular in the industry. Instead, we opted to use an AC cord so that you will not occupy valuable real estate on your wall outlet and also allows you to position the charger in a comfortable position rather than behind the cabinet in your hotel room! The AC cord can also be easily changed for various regions, such as the European, Australian, or U.K. cord.

### **WORLDWIDE OPERATION**

The MH-C204W has a integrated 100-240V 50/60Hz international power supply. When traveling abroad, it is no longer necessary to bring bulky transformers or have the fear of not having the right voltage.

Not to mention the MH-C204W is globally certified for safety and electromagnetic compatibility. This charger bears the UL safety mark, as well as FCC, CE, GS, C-Tick, Australia DOIR, Argentina S and numerous others.

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The AC power supply integrated in the charger is not just any power supply. Open up the MH-C204W and you will see the quality! The AC power supply is based on a patented "Top Switch" design that converts AC to DC power with over 75% efficiency. The charger is indeed an environmentally friendly product! We built the AC power supply well over spec to ensure high reliability.

### **BRAND NEW HEART**

One of Maha's unique strengths is the ability to develop a charging microprocessor in-house. We don't have to settle for an off-the-shelf product. Most of the features in a charger, besides its charging speed and size, depend mostly on its brain, the microprocessor. Maha's team of embedded systems architects and programmers designed a brand new microprocessor just for this charger: the MH-NM5000 series processor.

Through unique algorithms, we are able to reach nearly a 98% charging efficiency (that is a 98% charge level in the batteries when the lights turn green) without the risk of undercharging or overcharging. This is through an array of high-resolution 12bit A/D (analog-to-digital) converters and temperature sensors. After all, you don't want your 2300mAh NiMH AA batteries only charged to 1800mAh.

In addition, Maha's new processor also features a unique four stage charging process that is found in no other charger:

- Ramp-up
- Rapid Charging
- Top-off Charging
- Maintenance Charging

We know customers sometimes don't use their batteries for an extended period. By the nature of NiMH batteries, inactive batteries often degrade in performance significantly. That's why Maha designed a special "ramp-up" charge that "jolts" the batteries if needed to revive old batteries. This happens in the first two minutes after battery insertion. This "jolting" is a series of carefully timed high current pulses that can activate both new and inactive batteries. From the customer's point of view, they can put batteries of different health levels and rely on the charger to give them a complete charge.

The charger also features a unique "top-off" charge. Through extensive research, we have discovered that if, after charge completion, the charger abruptly terminates the rapid charge and goes directly to trickle charge, batteries often fail to retain the most amount of charge. Therefore, we designed an intermediate, medium current, top-off charge. This is similar to slowly "topping off" a glass of wine, but not to the rate of drop by drop. Drop-by-drop is the job of the maintenance charge.

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We know that customers sometimes need to leave their batteries in the chargers for extended period of time before they are used. The maintenance charge is an extremely low current pulse charging that gives the batteries a brief pulse charge every few seconds to ensure the batteries are charged but not overcharged. Instead of using a continuous current, the pulse maintenance charge allows the batteries to be in good shape even after being left in the charger for an extended period of time.

### **BATTERY CONDITIONER**

In addition to its superior charging algorithm, the MH-C204W also has a high-rate built-in battery conditioner. The conditioner, which can be activated by pressing the conditioning button, will deep-discharge the batteries and recharge them automatically without further user intervention.

The conditioner has proven to be useful in reviving poorly performing batteries. Batteries that were previously thought ready for the recycle bin can often be brought back to life.

### **QUALITY**

Maha is one of the very few companies that design, manufacturer, and market batteries and chargers all under one roof. The new MH-C204W only uses the highest quality components. These are assembled and tested in Maha's wholly owned state-of-the-art production facilities in Taiwan under ISO-9001 quality systems.

Before each unit is shipped, every charger goes through extensive automatic circuit board inspection as well as an automatic functional system. Maha has developed unique tools to characterize performance of EACH charger through simulated operation, not just sampling a small number of units. You can be assured that each charger is fully tested before it ships.