New Battery-Powered Soldering Iron

by Ross Tester

In last month's "Product Showcase" we featured a new battery-powered soldering iron from Aussie Rechargeable Irons and Master Instruments. We thought the product had much more to it than a few paragraphs in Showcase could reveal . . . and we were right!

Most of us – from hobbyists through to design engineers and developers – have battled with portable soldering irons over the years. And battled is arguably the right word.

While the developers of this new iron claim it is the first rechargeable cordless soldering iron on the market, it isn't: I (like many others) suffered with one perhaps 20 or 30 years ago. In fact, I'm pretty sure it's still floating around the bottom of the junk box, its "AA" nicad battery (yep, just one) having long since given up the ghost and due to the iron's overall shortcomings, was not worth replacing!

I'd hazard a guess to say that the vast majority of those battery-powered irons have ended up the same way.

While they appeared to be a really good idea for those times when mains power was unavailable, most of the battery-powered irons in the past have been little more than toys – grossly underpowered and with a very short battery life.

So much so, that many people who need remote soldering capabilities have switched over to gas-powered irons (butane in the main). But these are also not without their drawbacks.

One is that on a gas iron, temperature regulation can be difficult, if not impossible, to set and maintain. Most of the time, you risk component damage because they run too hot. But possibly the most important one has been the high flammability of the gas used. Butane gas is heavier-than-air so any leakage, from either iron or gas container, would tend to settle in the bottom of the tool box, just waiting for a spark . . .

And I don't know about you, but every gas-powered iron I've ever owned (and there have been quite a few over the years!) appeared to have less-than-perfect valves. They were always empty when you came to use them (usually after some idle period) and required refilling from, you guessed it, a gas container . . . which was also empty!

Not only that, but when in use they often blow out if it's at all windy.

So it hasn't been a happy choice for many people. Of course, some will say they love their gas or battery-powered irons – and if so, congratulations.

Enter the ARI lithium-ion iron

This new battery-powered iron from Aussie Rechargeable Irons (ARI) should be an order of magnitude (or more) better than what you are currently using.

The ARI iron is unashamedly aimed at the professional market – everything about it suggests "heavy duty" including its size – at just on 250mm long (including tip) and 45mm diameter, it's certainly no lightweight. But strangely enough, despite its 370g weight, it sits very nicely in the hand, well-balanced for long periods of use.

New kid on the block

We first came across Aussie Rechargeable Irons at last

year's Electronex show in Sydney. We weren't the only ones impressed by their product – and their tenacity – as Master Instruments (also an exhibitor at the show) were to leave Electronex with an agreement to become ARI's exclusive distributor.

How this came about is an interesting story in itself: Master Instruments imports a range of rechargeable batteries and they approached Aussie Rechargeable Irons to see if they could become their supplier. At the time, ARI was importing their own pre-made battery packs but limited volumes meant they couldn't achieve the economies of scale that Master Instruments enjoyed. You don't have to be Einstein to figure out where this was heading!

After some horse-trading (they call it negotiations), both parties saw the sense in Master Instruments' much wider distribution network, along with their volume importing discounts, to take on the ARI Iron. Until that time, ARI had achieved sales of 300-400 per month, most of which were from word-of-mouth referrals from happy users. Unfortunately, this didn't allow ARI to invest in a sales and marketing campaign. But Master Instruments could piggy-back the rechargeable iron onto their existing, and successful, marketing efforts.

So while it wasn't a new birth, it was a rebirth.

About the Iron

Aussie Rechargeable Irons, import the battery, switch and tip. Otherwise it is an Australian-made product, manufactured in Sydney.

The rugged 6061-grade aluminium body has a two-year warranty. The body also has a tough, durable powder-coating in fluoro colours (for safety) and has a number of raised "dimples" to prevent it rolling around.

From flat, its lithium-ion battery can be charged in 2-3 hours. It's hard to give an "on" time because of the very intermittent nature of soldering. ARI give a guide time of about a month for general use and perhaps a week or so for heavy-duty use.

Suffice to say battery life is "more than adequate", unless you're the type who likes to have the iron heating permanently. In fact, you really can't do that with the Aussie Rechargeable Iron because it has a push-to-heat switch conveniently set into the body – and from cold, you're ready to solder in well under 10 seconds (obviously, depending on the tip in use). It can be as low as four seconds! The non-lock-on switch is actually a safety feature – you simply cannot leave the iron turned on, gradually destroying tips like a mains-powered iron does.

Speaking of tips, there are 22 available – and they're very easy to swap. The largest tips are capable of soldering a ten gauge wire; the smallest fine enough for the most delicate solder jobs. The tips contain a specially coated copper core for long tip life.

The battery

The battery is the most important advance in this iron. It's a high-quality lithium-ion type, rated at 11.1V, 2.5Ah. Panasonic cells are used for longest life and longest time between charges. ARI claim a one-month-between-charge period – something we couldn't verify in the time available but it doesn't sound unreasonable.

The iron can be left plugged in indefinitely to its (supplied) 17V/1A plug pack 230VAC charger. This switch-mode supply plugs into a socket on the end of the iron. The internal automatic charging circuit not only regulates charging and over-heating but will disconnect the charger when the iron is fully charged. So you can be assured that the iron is always ready for work . . . just in case you forget!

The cells in the battery are protected (with PCM – a Protection Circuit Module), so you don't need to worry about unequal charge/discharge.

Batteries carry a 12 month warranty, while the tips are warranted for 90 days. The body has a 2-year warranty.

Like any rechargeable battery, the cells will deteriorate over time. How long? A very long time, according to ARI. (They also advise against leaving them in discharged state, again to prolong battery life). But even when they do eventually run out of puff, ARI have a cell-replacement service available. You don't have to buy a new iron – but by that stage you may well want another!

Three models

Along with the model we looked at (the ARI200Y, which we believe will be far and away the most popular), ARI also have a slightly larger, more powerful model, the ARI250G; and a smaller imported iron, the ARP160R, suited to very fine work.

Recommended retail prices range from $189.95 for the ARP160R to $319.95 for the ARI200Y and $349.95 for the ARI250G – all prices plus GST.

The ARI200Y as supplied for review came with a soft carry case, a 4mm (4D) tip and plug-pack charger. A range of accessories is currently being added, including a 12V car charger, wall or van-mounting carry tube and other cases.

Organisations can also have their company colours supplied or their own logos laser-etched onto the case at extra cost.

Aussie Rechargeable Irons are distributed by Master Instruments (www.master-instruments.com.au) and should be available now through better electronics/electrical wholesalers and retailers, battery suppliers, hardware stores and the like.

There is also a demo youtube video accessible via www.aussieirons.com.au SC

Who are Aussie Rechargeable Irons?

Terry Hewitt, an automotive electrician for nearly 40 years, was frustrated with the various soldering irons and guns available, so he set out to invent his own. One of his goals was to not only have battery power but have it heat up within 5 seconds from when he pressed the button.

While Terry's early prototypes worked, they didn't meet the 5s goal. That's where his friend Brett Hoy joined in. Brett has been a motor mechanic almost as long and also recognised the failures of currently available gear. Being something of an inventor, the two men put their heads together and came up with the Aussie Rechargeable Iron.

They switched the power source to lithium ion packs, which store a great deal more energy than do nickel cadmium or nickel-metal-hydride cells. The switch to lithium-ion achieved their 5s objective and enabled the iron to be used for weeks without recharging.

Terry and Brett have been using their Aussie Rechargeable Irons for some time now, ironing out any bugs as they went. And now Aussie Rechargeable Irons have started producing these irons in Australia, they're ready to demonstrate just how efficient, effective and productive they can be.