

# Solder Master ESM-50WL Cordless Soldering Iron

**Battery-powered soldering irons are becoming the preferred choice when soldering needs to be done away from mains power or in tight spaces. The Solder Master ESM-50WL from Master Instruments is the latest contender.**

Like the Wagner SI50HSK cordless soldering iron we reviewed in the April 2021 issue ([siliconchip.com.au/Article/14828](https://siliconchip.com.au/Article/14828)), the ESM-50WL is being marketed as a replacement for butane (gas) powered soldering irons. However, there are some significant differences between them.

We received a test unit from Master Instruments, a company prominent in the battery engineering space. They have had substantial input into this Australian-designed product.

The ESM-50WL Cordless Iron comes as a complete kit in a padded clamshell case. It includes the Iron, two tips, a protective heat-resistant silicone tip cover, both 12V (vehicle accessory socket) and universal (100V-240V)

mains chargers, and a small tube of lead-free solder.

The kit is ideal for keeping in the toolbox for those who know they might need to use a soldering iron anytime. The two chargers mean it can be kept charged no matter where you are.

As you might expect from Master Instruments, the Iron does not skimp on batteries. The battery is rated at 14.4V 3.45Ah (50Wh) and comprises four Panasonic cells. The chargers are rated at 1A, so the battery will charge from flat in a few hours, although generally you'll only need to top it off, taking less than an hour.

The nominal continuous running time is up to 270 minutes on 'low mode'. We found that we never came

close to running it down in our tests. Master Instruments reckon it's the longest-lasting battery on the market.

## In use

The ESM-50WL Cordless Iron is a powerful unit. We used it to assemble a project PCB, however, we found that it was overpowered for such a small task, as even on the lowest setting (480°C), it put out quite a bit of heat.

We then tried using it to solder heavy-duty wires onto some 70W LED panels on a thick aluminium-core PCB. For this job, it excelled. There is no doubt that this is a serious tool for heavy-duty work. It also handled splicing together some thick copper wires with ease.



The power button for the Solder Master ESM-50WL is located on the left-hand side. The yellow indicators on the top of the device show how hot the tip will become, while the blue lights indicate the battery charge left in 25% steps.



For those that want even more heat, its boost mode can provide 27W for up to 25 seconds.

The controls and LEDs are clear and visible on the top of the Iron, and it is well-balanced. The shape lends itself well to being placed flat on a work surface between uses, without fear of melting anything.

An included silicone tip cover can be fitted while the Iron is hot and allows it to be packed away safely. The Iron also has a white LED which is aimed towards the tip for illumination of the work. This lights up the work area nicely, but as it's only lit while holding down the heat button, it isn't that useful for positioning the tip before soldering.

Some of the suggested users include automotive and marine engineers, telecommunication techs and HVAC (heat, ventilation & air conditioning) installers. Those sound like the sort of jobs that will make good use of the portability, power and long running time that this Iron provides.

### Construction & servicability

The shell is fire retardant polycarbonate and ABS, and the Iron also appears made to be serviced, with a full range of spare parts available. The DC jack, for example, seems to be a standard barrel type and the tip holder is a silicone-lined gland, both of which are well-suited to straightforward user servicing and repair.

### Conclusion

The Solder Master ESM-50WL Cordless Iron is a powerful unit and would be well-suited as a gas iron replacement for those involved in heavy-duty work, in difficult situations. The kit provides a small but complete and versatile set of accessories to accompany the Iron.

While more expensive than a comparable gas iron, we think it has significant advantages, including having several charging options and being usable in places where an open flame is not safe.

The Solder Master ESM-50WL Cordless Iron retails for \$369.95 and is available from resellers like Wagner Electronics Super Store ([siliconchip.com.au/link/abau](http://siliconchip.com.au/link/abau)). For more information on this and related products, see [www.soldermaster.com.au/](http://www.soldermaster.com.au/) and [www.master-instruments.com.au/category/Solder\\_Master/2263](http://www.master-instruments.com.au/category/Solder_Master/2263) **SC**

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The soldering iron comes in a padded clamshell case. The case contains the iron with protective cover, two tips, a universal mains charger, a car charger and a tube of lead-free solder.



This 3D internal view of the soldering iron showing the battery pack is from the YouTube video: <https://youtu.be/8wvwyJlul-0h4>. This same YouTube video also has a 3D external view of the soldering iron.