



LapCabby...the details

'The difference between something good and something great is attention to detail'
Charles R. Swindoll

How does our Simultaneous Charging and Timer work?

At LapCabby we are constantly asked how we can charge all the devices in our clever carts simultaneously as opposed to round robin or cyclical – like most of our competitors.

The answer is our bespoke Power 7 Management system.

So how does Power 7 work?

In short the LapCabby Power 7 manages the power consumption from all the devices in our carts – to ensure power surges do not occur and all devices are charged efficiently. As well as managing the electricity distribution, the Power 7 Management also acts as a sophisticated, triple event, 24 hour, 7-day timer.

For the more technical minded, here is how it 'really' works; in its standard configuration, three timed charging cycles can be configured in any 24-hour period.

Every event turns on four charging circuit control relays with a stepped delay to reduce inrush loads caused by non-PFC charging power supplies. Further impulse-inrush reduction is then performed by near zero cross switching, synchronized to the supply frequency. The supply frequency is measured when the Power 7 is turned on and the appropriate timings are applied.

To prevent damage to connected charging power supplies and to isolate energy storing filter components, from a potentially exposed wall plug/socket, missing cycle detection is employed. In the case of a temporarily unstable mains supply or disconnected wall plug, all outputs are disconnected immediately on detection of the missing supply cycle(s).

Each switched output has an individual load capability of 6.3 amps (or 12 amps with a version 2 Power 7) with a total load capability not to exceed 12 amps.

The 12-amp limit is a regulatory limit not a component limit and is internally fused to meet this regulation. All fuses fitted are quenched, slow blow types so short overloads such as high initial charging supply start currents, are of no consequence.

What is the recommended Capacity?

A question we are often asked.... And in short, the capacity of the cart is calculated by:

Supply (Volts) x Amps / Number of Devices = Recommended watt allowance per device

Therefore the maximum safe device capacity, for charging all simultaneously, varies dependant on the types and quantities of devices being charged and of course the state of the batteries.

For example, a device at 40% battery will demand a much lower power levels than that of a counterpart with its battery completely depleted. And naturally an iPad demands less power than a Chromebook or MacBook.

What if my devices quantity and type exceed the Carts recommended Capacity?

Truthfully, there is no such thing. Admittedly, dependant on your device volume and type, it may be unadvised to charge all your devices simultaneously.

Should your devices' power supply exceed the recommended limit, by using the Power 7 timer, you can simply transform our simultaneous charging cart into a round robin charging cart to ensure all devices are safely charged and always ready for use.

Our Power 7 timers can be programmed so that you can charge the maximum number of devices, at set times, throughout the day. And can split the charging to allow the necessary power to reach one set of devices, limited to a safe level, before swapping to other devices to ensure everything is fully charged. This can be done sequentially, for instance on 2 hour increments.

By charging multiple devices, via different power strips and different times, the Power 7 ensures you will never incur a power surge or exceed the recommended power consumption - for optimal health and safety.

And again, for the more technical explanation... In the case of total continuous load currents exceeding the 12-amp maximum, the outputs can be configured in the relay management menu. Any combination of outputs can be configured to operate on a given timer. For example: outputs 1 and 2 could be configured to be controlled by timer 1 and outputs 2 and 3 could be controlled by timer 2. The two timers can then be set to run sequentially or overlap, thus reducing the continuous current. This, of course, uses two timers for a single charging session.

The fifth output can be configured to be part of the charging sequence, to be turned off during a charging sequence or permanently left on (default setting). Once this function is turned on, an extra menu item for choosing outputs appears within the timer setup.

Testing Standards

All LapCabby products have been tested and certified to UL60950 and UL62368. To be certified to UL each individual component and the fully assembled product are tested separately to ensure complete safety.

See Health & Safety Guide for more information on how LapCabby products are tested.

Electrical Detail

The UniCabby32H unit is powered via a snap in IEC lead connecting into a 16A IEC socket. The socket is then connected into a UL certified power strip which distributes the power simultaneously to all devices on each shelf via the Power7 (described above in 'Power Management' section).

All electrical components, power strips and the Power7 located in a separate electrical compartment located in the back of the cart accessed by a hidden lever. All LapCabby units offer 2 levels of protection. Each power strip in a LapCabby unit is controlled by switched relay controller. These controllers continually monitor the incoming power supply for anomalies and break the circuit to the power strip should an anomaly occur, thereby protecting any devices within the cabinet.

The controller is auto correcting, in that should the anomaly disappear, i.e. it was only a transient issue, then the incoming power will be re-switched to the power strip. Furthermore, the controller protects the end user in that the

circuit to the wall plug is broken as soon as the plug is removed from the wall socket, this protects the end user from any potential discharge shocks associated with multiple devices within the unit.

Finally, the whole unit is protected from significant mains voltage fluctuations via a main fuse mounted on the controller circuit board.

Heat Sensor

Each LapCabby cart is fitted with a thermal cut out sensor. The built-in heat sensor measures the ambient temperature of the cart ensuring it doesn't exceed safe levels to protect the devices and cart. In the event that a laptop overheats the sensor will shut off power and will remain off until the heat dissipates and returns to a safe working temperature preventing overheating and a possible fire risk.

Install & Cable Management

In the separate power compartment, located in the back of the unit, is where all the power strips and power management system are located and this is where the cable journey begins. Each AC adaptor and excess cable sits in its own pocket to keep things tidy and safe and there are 4 different cable clips to keep cables securely in place. The specially designed UniCabby shelf, injection moulded from tough ABS has a cable management solution built right in!

To load the cart, simply plug the device into the power strip, thread the low voltage cable through the cable management portholes threading it through the cable winder and through to the main device storage compartment. Pop the AC adaptor and any excess cable in its individual pocket and clip the cable into the two cable clips attached to the pocket. Move to the front of the cart and pull the low voltage cable through to the relevant device shelf and sit the cable into the cable management channel built into the shelf and slide the cable clips across to secure in place. That's it!

Locking System

Each LapCabby cart has a dual point locking system to the front of the cart and has a concealed dual point locking mechanism to the back compartment that stores the electrical components.

For safety and security, the back electrical compartment can only be accessed via a hidden handle on the inside of the cart.

Each cart has a single key lock located on the top of the cart to avoid damage to the lock and keys during movement and carts are all keyed alike so lock can be operated via one key for multiple carts.

The lock and key that is supplied is robust with a 7-pin activation system within the lock and has been tested by an independent locksmith. The double-sided key has two sets of teeth making the locking system more durable, impossible to pick and substantially increases security.

How can we guarantee our wheels for life?

Each cart is fitted with 4 x 5" swivel castors, 2 locking.

The castors are all non-marking hospital grade rubber wheels, each fixed into the fully welded frame with a 0000 gauge steel binding plate welded above the wheel to prevent loosening or buckling of the wheels.

These carts are used all over the world, including Australia where classrooms are connected by external concrete footpaths and LapCabby wheels stand up to the test without fail!

Each LapCabby product has a lifetime warranty covering the entire unit and the components including the wheels (5 year warranty on electrics). We have never received a warranty claim regarding wheels, ever.

What are LapCabby units made from?

Each LapCabby cart is constructed from a fully welded 1" x 1" x 16-gauge steel frame, caged 16-gauge steel base, hardwearing 3/4" MFC cladding with injection moulded ABS cable clips, AC adaptor holders, vents and handles and heavy-duty steel binding plates connecting hospital grade wheels to prevent loosening or buckling of wheels.

Benefits of MFC over sheet metal

Sheet metal is very thin, doesn't give the carts any stability, has sharp edges and corners and is extremely prone to dents. During movement, the metal shakes and creates unnecessary noise and large flat metal surfaces, like doors, flex and lack rigidity meaning they can easily be bent open to break into the cart. Wheels are often screwed into the base, not welded, causing issues like loosening and buckling wheels limiting movement.

The hard-wearing and robust construction of the LapCabby make it the cart of choice in the toughest of environments including HMP (Her Majesty's Prisons) in the UK and Australia, Department of Correctional Services in South Africa, Kriminalomsorgen (Norwegian Correctional Services) in Norway along with the Royal Navy, Armed Forces of the Russian Federation, the British Armed Forces and the United States Air Force.

Using 3/4" MFC, in conjunction with the 1" x 1" x 16-gauge steel frame, gives the product lateral strength yet keeps the unit secure and light to move around. MFC is 18 times thicker than sheet metal which means larger, stronger fixings are used and this gives a lot more stability and security to the product. This is a major benefit for educational environments because it makes it a lot harder to loosen and remove fixings causing damage to the carts or the students and teachers.

Advantages when using WiFi Routers

The construction of all LapCabby units has significant advantages when used in conjunction with Wi-Fi Routers. An optional add-on to most LapCabby units is the R4C - Ready for Connect. This add-on allows for a RJ45 socket on the outside of the unit that enables the unit to be connected to the LAN (Local Area Network). The socket provides the link between the LAN and a WiFi Router which can be housed inside the unit. The incorporation of the WiFi router within the unit enables devices to connect to the LAN via the R4C WiFi.

The construction of the LapCabby means that WiFi signals from devices outside the unit (Laptops, Chromebooks, Tablets or Smart Phones for example) are not blocked in the same way that a cabinet manufactured from metal might do. Metal cabinets have the potential to act like a Faraday Cage – a device specifically invented to block electromagnetic waves. If you have devices outside the charging cabinet that are trying to connect with a WiFi Router inside, a metal construction could block the signal causing connectivity issues. The same issue could be faced if devices inside the metal charging cabinet need to be connected to a WiFi Router outside the charging cabinet.

Lifetime Warranty

Due to the robust construction of the cart we offer a lifetime warranty on the complete cart with 5 years on all electrical components. Without doubt this is the most comprehensive warranty on the market.

Cart manufacturers that build units from sheet metal offer extremely limited warranties which are even more limited when you read the fine print! See the full LapCabby Warranty.