

USER'S GUIDE

It thinks for you!

INTELLIGENT Laptop Computer Cart



LAP30ULV-CT

30 Laptop Computers in Vertical Slots

Maximize your technology investment

Unique Power Management & Control System (patent pending) gives you the ability to:

Extend the battery life of your computers with one touch!

Save on energy costs – the “Brain” knows the more charged a battery, the less power it requires.

Designed for the IT Coordinator, the Instructor & the Student

Easy set-up for the **IT Coordinator**

Easy to maintain by the **Instructor**

Easy to use for the **Student**

Color-Coded Labeling System helps keep you in control and your investment organized.



All about Safety & Security

Peace of mind, knowing that **the entire cart is UL Listed** - not just the electrical units. So your students - your real technology investment - are safe and secure.



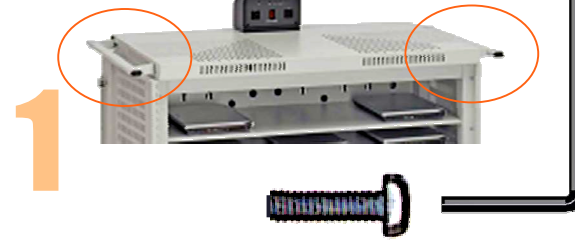
11000 Seymour Avenue Franklin Park, IL 60131 USA 800 521 9614
www.bretford.com

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Assembly Instructions

Attach the Push/Pull Handles

Attach the two **Push/Pull Handles** to the ends of the cart with the provided **Allen Wrench** and the four 1/4-20 x 1" Bolts



Unleash the Power Cord

The 10-foot Power Cord is tucked inside the back of the cabinet. Looking at the back of the cart, find the grommet hole beside the right handle. Thread the plug through the grommet hole, pull the cord through, and wind around the handle.

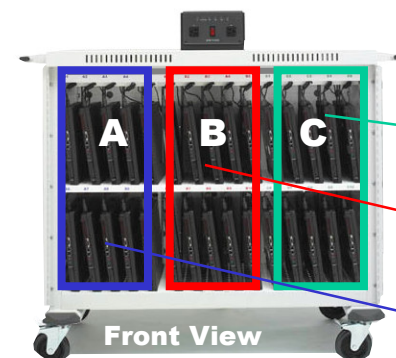


Setting the Combination Locks

Your new Intelligent Laptop Computer Cart comes equipped with two re-settable Combination Padlocks. You can program them with the same combination or different combinations – the choice is yours. Each lock starts with 0-0-0-0. Follow the directions with the lock for changing the combination. Remember to depress the shackle before un-engaging it from the lock.



Power Management System ... “The Brain”



Power Strips A & B & C are controlled by the “Brain”, which shifts the power from one strip to the other, and even allows a “Turbo Charge”, where all available power is sent to either Power Strip A or B or C – Steps 3 & 4 & 5

3

Push the “Mode” Button
3rd LED comes on,
BLUE ...
Only Computers plugged
into **Power Strip A**
are TURBO Charging

4

Push the “Mode” Button
4th LED comes on,
BLUE ...
Only Computers plugged
into **Power Strip B**
are TURBO charging

5

Push the “Mode” Button
4th LED comes on,
BLUE ...
Only Computers plugged
into **Power Strip C**
are TURBO charging

1

Turn Red Switch “ON”
1st LED comes on,
GREEN ...
Cart has power

2

Push the “Mode” Button
2nd LED comes on,
YELLOW ...
All computers in the cart are
charging

6

Push the “Mode” Button
5th LED comes on,
ORANGE ...
Only the 2 Auxiliary Outlets have
power, no battery charging

“What happens when I push the button?”

“What do the lights mean?”

Turn on **Red Power Switch**.

Green light glows as long as the Red Power Switch is turned on. Power is now on inside the laptop cart.

Always-On Electrical Outlet stays on as long as the Red Power Switch is on. (see below)

Left alone, the Brain will automatically turn on the **Yellow** light, which means that all power is being sent to charge the computer batteries.



Mode Button

Green = Power On

Yellow = Power to the all the laptops

Blue = Turbo-Charge, 10 at a time

Amber = 2 Auxiliary Outlets ONLY

1x Yellow Light comes on, all laptops charging

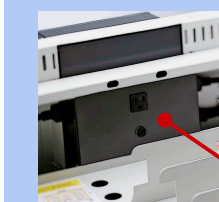
2x 1st Blue Turbo Light comes on. All available power diverted to Power Strip A

3x 2nd Blue Turbo Light comes on. All available power diverted to Power Strip B

4x 3rd Blue Turbo Light comes on. All available power diverted to Power Strip C

5x Amber Light comes on. All available power diverted to the 2 Auxiliary Monument Outlets ONLY – no charging

6x Reverts to Green Light indicating power in the cart



Always-On Electrical Outlet
Under the Brain, accessible from the rear of the cart, is one unique Electrical Outlet, rated for 1 Amp. This outlet is for a Wireless Access Point.

The Wireless Access Point's power cord can be routed through the cart at the side cord-pass-thru-hole, opposite the cart's power cord. Remember, the outlet is maximum 1 Amp, only.



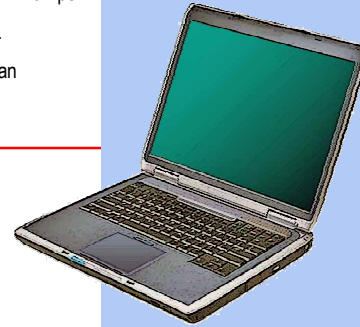
- **Only One Electrical Plug** to the wall outlet reduces nuisance tripping of circuit breakers.
- “Round Robin” sequencing evaluates the demand for power from each electrical strip of ten computers, concentrating on those batteries that have the most demand for power.
- “Round Robin” also allows each electrical strip time to cool down. **Cooler batteries last longer**, and extended battery life saves you money.
- A **Divider Panel** separates the computer/battery from the transformer, minimizing the transformer's heat impact on the battery ... cooler batteries last longer.
- The Brain recognizes as batteries become charged, and **sends only enough power** to keep the batteries well within their thermal limits, drawing only the required power and saving you money.
- A single **Mode Button** lets you cycle through the various settings, while the LED lights help keep track of what the power system is doing.
- **Two Auxiliary Outlets** on the top of the cart let you use a video projector or a printer with confidence, since the Brain will dedicate the power to those accessories when you need to use them. **Accidentally overloading the circuit is minimized!**



- ELECTRICAL:** Avoid sparks. Avoid arcing **Always turn OFF the power to the cart before plugging IN or OUT!**
- ELECTRICAL:** For Safety Purposes, make sure all electrical components do not exceed the the maximum load rating of 12 amps.
- ELECTRICAL:** Risk of electrical shock. Do not plug the power cord into another extension cord or relocatable power tap.
- ELECTRICAL:** The Power Bars inside the laptop cart are only for charging laptop computers. Any other use may cause an overload for the Power Management System, causing the "Brain" to shutdown, resulting in the LED lights flashing on and off. To reset the Brain, turn off the main power switch, unplug the non-laptop computer, then turn the main switch back on.



- CAUTION:** Ventilation is critical for laptop computer carts to operate correctly, providing the appropriate airflow so that heat-buildup is minimized during the battery-charging process, with the computers turned OFF. Be sure each laptop computer is turned OFF before plugging into the cart.
- CAUTION:** Do Not block the ventilation holes on the cart. Proper air flow is required for safe operation of equipment.
- CAUTION:** Cart with computers should be keep in a room with a maximum temperature not to exceed 77° F or 25° C.
- CAUTION:** Maximum weight of accessories on top of cabinet is 25 pounds. Do not block ventilation holes when charging batteries.
- CAUTION:** Avoid loading equipment in the cart in a uneven fashion. Uneven weight distribution could cause a hazardous condition.



How Does a Laptop Computer Manage Heat?

To manage the heat stress of the battery, computer engineers include sophisticated battery management functions in the design of the computers. They can be found in two places: the external charger & internal to the notebook computer itself. The transformer converts the alternating current from the wall socket to a lower voltage direct current. Besides charging the notebook's battery these "bricks" as they're sometimes called, can supply enough electricity to operate the laptop and charge the battery simultaneously.

Deep inside the computer a dedicated microcircuit continuously monitors and manages the charging current, voltage and temperature of the battery. If the temperature of the battery exceeds limits, the microcircuit will stop charging the battery until the temperature drops to acceptable levels.

Keeping the battery cooler while charging allows the battery to charge faster.

Cable Management System ... "The Cable Clutter Closet"

C5 C4 C3 C2 C1
Store **TOP-Row** cordsets in this cordbin. These numbers represent the order of the computers on the front.

B5 B4 B3 B2 B1

A5 A4 A3 A2 A1

For the Turbo-Charge Modes to operate properly, please follow these wiring and cable instructions

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- 1 Unpack the Laptop Computers, being careful to keep each computer with its matching Cordset
- 2 Label each Computer and its Cordset with the supplied labels, A1 through A10, B1 through B10, C1 through C10
- 3 Start with the B-Section on the top shelf, B5 through B1
- 4 From the back, fish the Power Connector Cable from Cordset B5 through a pass-thru hole in the divider panel, directly behind the B5 Vertical Slot.
- 5 Go to the front of the cart, and attach the Power Connector cable to the 2 clips above the B5 Slot

A - B - C Power Strips, as defined by the Brain

REAR VIEW

Labels inside the Cable Clutter Closet show you how to use the Color // Number Code labels for optimal advantage of the Brain and its Turbocharge Mode

C10 C9 C8 C7 C6
Store **BOTTOM-Row** cordsets in this cordbin. These numbers represent the order of the computers on the front.

B10 B9 B8 B7 B6

A10 A9 A8 A7 A6

Always-On Electrical Outlet
Under the Brain, accessible from the rear of the cart, is one unique Electrical Outlet, rated for 1 Amp. This outlet is for a Wireless Access Point. The power cord can be routed through the cart at the side cord-pass-thru-hole opposite the cart's power cord.

- 6 Leave enough cable hanging down to attach the Power Connector to the Computer – plug in the Computer
- 7 Return to the back of the cart, and plug the opposite end of the Power Cord into the designate B5 electrical outlet.
- 8 Bundle the extra cables with the Adapter Brick and wrap with the Velcro® cable strap, and lay the wrapped Cordset inside the Cordbin, making sure there is no tension between the wrapped Cordset, the Power Cords.
- 9 Continue Cable Management with Computer and Cordset B4, then B3 etc
- 10 Finish the B Section – top shelf and bottom shelf, before moving to the A-Section, and finally the C-Section.

A - B - C Sections, as defined by the Brain

FRONT VIEW



Clear Cable Lock

in front of the Cable Hooks in the front of the cart slide left and right. Loosen the 3 thumb screws and slide the Cable Lock so that the computer power plugs can hang directly in front of the computer slot, making it easy to find the right connector for each computer. Then slide the Cable Lock so that the cables are locked in their slots. Tighten thumb screws.



"A place for everything, and everything in its place."

You know from personal experience the value of keeping your closet neat and organized. You know exactly where everything is when you open the door. So Bretford developed a "closet" for all the cords and cables associated with Laptop Computers.

Your Intelligent Laptop Cart has its own **"Cable Clutter Closet"** – a lockable compartment at the back of the cart especially designed to keep all the cables away from the computers and the hands that retrieve those computers from the cart.

The interior **Divider Panel** separates the cart so that 75% of the cart is dedicated to the computers in the front and 25% is dedicated to cables and power adapters in the back. Holes in the Divider Panel allow the computer connector cables to pass thru and be easily connected to the computers for charging.

By separating the computer from its power adapter, you minimize the amount of heat beside the computer battery, allowing it to charge at a lower temperature,

... allowing the battery to charge faster.

(see "How Does a Laptop Computer Manage Heat?" above)

Only the **IT Administrator** has access to the Cable Clutter Closet, since it has its own programmable Combination Padlock.

Fold-back doors for easy access and full view of the closet – you immediately know if something is missing or out of place.

Special **Cable Bins** for the power adapters and their cables provide nesting for cordsets.

Comes with appropriate **stickers** for color and number coding the computers, the slots and the cable sets.

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INTELLIGENT

Laptop Computer Cart



LAP30ULV-CT

30 Laptop Computers in Vertical Slots

Power Module

keeps the constant flow of power from a single wall outlet charging batteries where needed.

LED Lights

on the Power Module keep you informed at a glance of what's going on in the cart

Directional Locking Casters

can be locked as a rigid caster for easy rolling down the hallway, unlocked to swivel for easily getting into tight spaces

3-point Security

on both front & back doors with programmable combination padlocks, plus recessed doors make it difficult to pry them open

Doors fold back against the sides of the cart, out of the user's way, both front & back

Cord Winder

on the handle, provides easy access up high, so that the cord does not get crimped under the wheel

Cable Clutter Closet

keeps the cable sets and adapter bricks organized, everything in its place, with easy access



Front View



Back View



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Every laptop computer comes with 12 feet of cable, plus the adapter ... 12 x 30 = 360 feet of cable that has to go somewhere!