Overview

HP Managed and Unmanaged Notebook Charging Carts

Models

HP 20-Notebook Charging Cart	QL488AA#ABA
HP 30-Notebook Charging Cart	H4F31AA#ABA
HP 20-Notebook Managed Charging Cart	QL489AA#ABA
HP 30-Notebook Managed Charging Cart	QL490AA#ABA

Introduction

Designed to securely store and charge notebook PCs-from tablets and minis to notebooks with up to a 15.6-inch diagonal screen size-inside the classroom, these innovative carts have a large compartment with up to 30 individual, smooth-edged shelves for easy, quick, and safe loading and unloading by teachers and students, and a separate, locked IT compartment to store notebook power adapters (Charging and Managed Charging Carts) and Ethernet connectors (Managed Charging Carts). The HP 20- and 30-Notebook Charging Carts store and charge 20 or 30 notebooks PCs. The HP 20- and 30-Notebook Managed Charging Carts store and charge 20 or 30 units and include Ethernet cables for convenient batch installation of software updates or virus protection.

Key Features

- **Open Architecture**: Compatible with a large variety of HP and non-HP tablets, netbooks, and notebooks, up to 15.6 inch screen size
- **Smart Charging Technology**: Load-sensing technology directs charging power when and where it's needed most, so each notebook is charged as quickly as possible.
- **Retractable Front Doors**: Two locking, hinged front doors on the notebook bay open from the center and retract into the cart's side channels for neat storage.
- **Removable Shelves**: Lightweight, shelves feature hand cut-outs for easy notebook removal and venting for optimal cooling/airflow. Removable shelves and pegs allow extra storage space inside the cart. Shelf insertion/removal is done through a simple peg and notch system.
- **Service Compartments**: Two locking, removable rear panels allow access to the AC adapters (Charging Cart) and Ethernet cabling (Managed Charging Carts). The top locking panel on the top surface of the cart is removable for access to IT equipment (i.e. WAP/router, Ethernet switch(es) and controller box). For the Managed Charging Carts, switch(es) and WAP/router are purchased separately and customer-installed.
- **Ample Ventilation**: On the Charging Cart, two continuous-operation fans provide cooling in the top compartment. On the Managed Charging Carts, two fans cool IT equipment located in the top compartment and four fans cool the notebooks in the main body of the cart. All fans are always on. Venting is located on both end panels and the front and rear of the cart.
- **Casters**: Four 4-inch medical-grade, dual-wheel custom casters support easy turning and moving over thresholds. All four casters can be locked into place through a foot brake pedal to prevent the cart from rolling. All four casters swivel.
- **Cable Management**:
  - **Internal**: Cable management channel guides keep power (Charging Cart and Managed Charging Carts) and Ethernet cables (Managed Charging Carts) neat and managed inside the cart.
  - **External**: Specially-designed panels located at each end of the cart that provide venting also serve as a recessed cable management wrap for external cabling.
- **Security Features**: Includes a standard key/ lock system for securing the notebook and service compartments. A single key opens all notebook and service compartments of the cart. All compartments are independently secured, restricting user access to only desired compartments. Four keys are included with each cart. **NOTE:** All carts are keyed the same

Compatibility

HP Managed and Unmanaged Notebook Charging Carts are compatible with tablets, netbooks, and notebooks from 10.1 to 15.6 inch diagonal screen size.

NOTE: Due to height limitations of the notebook bay, the following externally-attached batteries cannot be used with the HP Notebook Charging Carts: AJ359AA, AT486AA, BJ803AA, QK639AA, QK640AA, QK645AA, RX932AA.

Overview

Service and Support

HP Managed and Unmanaged Notebook Charging Carts are supported by a one-year limited warranty. Additional support is available by phone as well as online support forums.

Technical Specifications

	HP 20-Notebook Charging Cart	HP 20-Notebook Managed Charging Cart	HP 30-Notebook Charging Cart	HP 30-Notebook Managed Charging Cart
Dimensions (L x W x H)	35.25 x 24.8 x 42.0 in (89.5 x 63 x 106.7 cm)		48.65 x 24.8 x 42.0 (123.6 x 63 x 106.7 cm)	
Packaged Dimensions (L x W x H)	40.6 x 30.3 x 50.4 in (103.1 x 77 x 128 cm)		54 x 30.3 x 50.4 in (137.2 x 77 x 128 cm)	
Cart Weight (estimated, w/o computer equipment)	170 lb (77 kg)		199 lb (90 kg)	
Cart Weight (estimated, with notebooks and managing equipment)	385 lb (175 kg)	405 lb (184 kg)	521 lb (243 kg)	556 lb (253 kg)
Packaged Weight	234 lb (106 kg)		280 lb (127 kg)	
Rated Weight Capacity of Top Work Surface	25 lb (11.3 kg)			
Notebook Bay Dimensions (W x D x H)	12.4 x 17.13 x 2.4 in (31.5 x 43.5 x 6.1 cm) Note: To increase the height of a bay, adjacent shelves may be removed.			
Power Adapter Cradle Dimensions (L x W x H)	6.7 x 2.6 x 1.5 in (17 x 6.6 x 3.8 cm)			
Power Adapter Cradle Weight Capacity	0.9 lb (0.4 kg)			
Operating Assumptions	Custom power controller design – capable of operating within the standard electrical requirements of the country of purchase.			
AC Power Adapter	One HP AC adapter used for powering the controller box is included with the cart. AC adapters for powering notebooks are customer supplied and installed.			
Liquid Ingress Protection Requirement	Grade "0;" Cart structurally engineered to preclude liquids			
Internal User Power Outlets (Country Specific)	• 20 notebook AC adapters	• 20 notebook AC adapters • 1 WAP* (always on) • 1 for Ethernet switch* • 2 not used (120v version) • 1 not used (230v version) *sold separately	• 30 notebook AC adapters	• 30 notebook AC adapters • 1 WAP* (always on) • 2 for Ethernet switches* • 1 not used (120v version) * sold separately
	NOTE: On Managed Charging Carts, notebook outlets are safety controlled by temperature. Intelligent electrical system senses power needs and allocates power as needed throughout the cart. Notebook are cycled on based on power budget and charge priority.			
External User Auxiliary Outlets	2	2	2	2
	NOTE: On Managed Charging Carts, an LED indicator displays when power is distributed to the external outlets. If there is available current while the Aux outlets are in use, it will be directed to charging the notebooks. Once external equipment is unplugged or turned off, full charging activity resumes. First-level power priority is given to the auxiliary, switch and WAP outlets. Notebook outlets will receive current if there is remaining power available.			
Timer Controller	Sorting/prioritizing of power allocation happens when the cart is plugged in and when a new factor (such as plugging in an additional notebook, use of the external auxiliary outlets, etc) is introduced or at			

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	regular intervals if no new event occurs.			
Fast Response Inrush Current Limit	Phases the power of the notebook outlets up over four (20 unit carts) or six banks (30 unit carts), preventing breaker from tripping on start up of charging. All notebook outlets are powered up in groups of five after the turn-on delay and will remain powered up until an over-temperature fault, circuit breaker trip, AC cord removal, charging or managing the next bank, auxiliary outlet is used or site power is removed.			
LED Status Indicators	None	Eight LED lights with corresponding icons are located on the top work surface for easy read out. Indicators show the following power information: • White Solid – HP logo • Blue Solid – Power to the cart • White Solid – Power to the external outlets • Blue Slow Flashing – Bank (1-4) is charging • Blue Fast Flashing – Cart is sensing the current draw • Amber Flashing – Max recommended temperature is exceeded and power is removed from the notebooks (overtemp)	None	Ten LED lights with corresponding icons are located on the top work surface for easy read out. Indicators show the following power information: • White Solid – HP logo • Blue Solid – Power to the cart • White Solid – Power to the external outlets • Blue Slow Flashing – Bank (1-6) is charging • Blue Fast Flashing – Cart is sensing the current draw • Amber Flashing – Max recommended temperature is exceeded and power is removed from the notebooks (overtemp)
	NOTE: On Managed Charging Carts, at cart start up, the system initiates a current sensing action. During this time, the bank being sensed will flash fast until the sensing activity is complete. Interval length is optimized at 30 seconds per bank for current sensing and 10 minutes per group for charging.			
Notebook Charging Status	Cart design assumes that charge status of each individual notebook will be displayed on the notebook and not indicated on the cart.			
Fault Conditions	**Unmanaged Carts**: None **Managed Carts**: : Temperature sensor shuts down charging if the maximum internal temperature is exceeded. Once operating temp returns to safe levels, charging will automatically resume operation. The Amber LED light flashes to indicate fault. Power is not removed from the controller box, aux outlets or WAP/Wireless router during high-temperature conditions.			
Controller Box	**Unmanaged Carts**: The Controller Box accepts power from an input cord and is distributed through two circuit breakers (Line and Neutral) to the Power Control Board. It also utilizes an HP standard AC adapter to convert AC to DC for fan and digital control and provides DC power to two fans. It is designed to meet all applicable standards. The Controller Box houses the PC board that directs the intelligent electrical system. **Managed Carts**: The Controller Box accepts power from an input cord and is distributed through two circuit breakers (Line and Neutral) to the Power Control Board. It also utilizes an HP-standard AC			

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	adapter to convert AC to DC for fans and digital control and provides DC power to six fans and digital signals to the LED and temperature sense board. It is designed to meet all applicable standards. The Controller Box houses the PC board that directs the intelligent electrical system.			
Cooling	**Unmanaged Carts**: Two 5-volt DC continuous operation fans in the top compartment of the cart **Managed Carts**: Four 12-volt DC continuous operation cooling fans in the notebook bay. Two 5-volt DC continuous operation cooling fans in the top compartment. **NOTE**: On Managed Charging Carts, temperature sensing is located in the cart to monitor inlet air of the notebooks to verify safe operation. The size and power requirements of the fans are dependent upon thermal analysis of the heat load and cooling schema. They are connected to the Power Control Box via a modular connector of the appropriate current rating. If the over temperature threshold is met, power to the AC power adapters (notebook charging) and Ethernet outlets is removed and the high-temperature LED is enabled. When the high-temperature situation is corrected, power is restored to the AC adapters without user intervention; the high-temperature LED is disabled.			
RJ-45 Interconnect Cables	None	20 custom-length Ethernet cables	None	30 custom-length Ethernet cables
Ethernet Switch	**Unmanaged Carts**: Not included, cart is not upgradeable **Managed Carts**: Switch not included, cart may be upgraded by customer if desired. Ethernet switch 1U mounting brackets and dedicated space for one Ethernet switch is provided within the secured upper compartment of the cart. Cart electrical system power budget and outlet layout is designed for use of one Ethernet switch for managing the notebooks/support of Wake on LAN functionality assumed. **NOTE:** Space for one Ethernet switch is provided.			
External RJ-45 Cable (from switch to the wall)	N/A	14 ft (4.3 m) cable included	N/A	14 ft (4.3 m) cable included
WAP (Wireless Access Point) or Wireless Router	**Unmanaged Carts**: WAP/router is not included, cart is not upgradeable **Managed Carts**: WAP/router not included, cart may be upgraded by customer if desired. Cart electrical system power budget and outlet layout assumes the use of a 15-watt max WAP or wireless router. The WAP/wireless router receptacle is always on.			
Country-Specific Power Distribution	Provide power for: • 20 AC-DC Adapters for each notebook via four, five-outlet country-specific power strips. • Two external auxiliary country-specific outlets	Provide power for: • 20 AC-DC Adapters for each notebook via four, five-outlet country-specific power strips. • Combined power distribution for one country-specific Ethernet switch and one country-specific WAP/router • Two external auxiliary country-specific outlets	Provide power for: • 30 AC-DC Adapters for each notebook via six, five-outlet country-specific power strips. • Two external auxiliary country-specific outlets	Provide power for: • 30 AC-DC Adapters for each notebook via six, five-outlet country-specific power strips. • Combined power distribution for two country-specific Ethernet switches and one country-specific WAP/router • Two external auxiliary country-

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				specific outlets
DC Power Adapters	Not Required. Cart will use customer-supplied power adapters to supply charge to the notebook. Customer will install each power adapter using adapter storage cradle and securing strap for cable management.			
Power Cord to Cart (from cart to the wall)	12-ft detachable pre-installed country-specific straight cord			
External Power Switch	Unplug main AC power cord to disconnect power. No on/off switch is provided			
Product Storage and Transportation Temperature	–40° to +60° C (–40°to 140° F)			
Relative Humidity (Storage)	5 to 95% (non condensing)			
Operating Temperature	0 to 30° C (32 to 86° F)			
Operating Relative Humidity	10 to 90% (non condensing)			
Altitude	2,000 meters maximum			
Acoustics	Following ISO 7779 and ISO 9296, when operating with doors closed			
Overall Cart and Electrical Certifications Assumed	• RoHS • REACH The system must be Listed, Verified, and Certified to: • UL 60950-1 • CAN/CSA C22.2 No. 60950 • UL 1667 • ICES-003 Issue 4, Class A • FCC Part 15 Class A And others as required.			