

Eaton® 9170+

Battery Charger Module
Models ASY-0652 and ASY-0675
User's Guide



Powering Business Worldwide

Class A EMC Statements

FCC Part 15

NOTE This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

 **WARNING**

This is a product for restricted sales distribution to informed partners. Installation restrictions or additional measures may be needed to prevent electromagnetic disturbances.

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Special Symbols

The following are examples of symbols used on the product to alert you to important information:



RISK OF ELECTRIC SHOCK - Observe the warning associated with the risk of electric shock symbol.



CAUTION: REFER TO OPERATOR'S MANUAL - Refer to your operator's manual for additional information, such as important operating and maintenance instructions.



This symbol indicates that you should not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

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Chapter 1 Introduction

The optional Eaton 9170+ battery charger module is designed to provide additional current for faster recharging of uninterruptible power system (UPS) battery modules in systems with many batteries.



NOTE To realize maximum module functionality, install battery charger modules in the UPS cabinet.

For systems with especially long runtime requirements, DIP switches on the rear panel of the battery charger module make it possible to install the module in a specially designed external battery cabinet (ASY-0739).

The battery charger module is capable of providing up to 20 amperes of current for optimum charging, based upon the condition and number of batteries in the system.

Examples of improved system recharge times are shown in Table 1. Note that larger systems require at least one (or more) battery charger modules to be able to recharge the larger number of battery modules.

Table 1. Recharge Times Using Battery Charger Modules

Designed Runtime (Minutes)	Number of Battery Charger Modules	6 kVA Capacity		12 kVA Capacity		18 kVA Capacity	
		Battery Modules	Recharge Time (Hours)	Battery Modules	Recharge Time (Hours)	Battery Modules	Recharge Time (Hours)
58	0	16	20	32	20	48	20
	1		3		4		6
120	1	28	5	56	8	82	11
	2		6		9		13
240	1	54	9	110	17	160	N/A
	2		6		9		13
360	1	78	14	160	N/A	234	N/A
	2		7		14		19
480	1	102	18	200	N/A	308	N/A
	2		10		18		26
	3		7		13		18

Physical Features

The battery charger module is similar in appearance to a power module. The two primary differences are the front label color (light-purple for the ASY-0652 and orange for the ASY-0675) and the current-limit DIP switch on the rear panel of the module as shown in Figure 1. See “Setting DIP Switches” on page 12 for more information on DIP switch functions.

The module may be installed in either the UPS cabinet (6-, 9-, and 12-slot sizes) or a special 12-slot external battery cabinet.

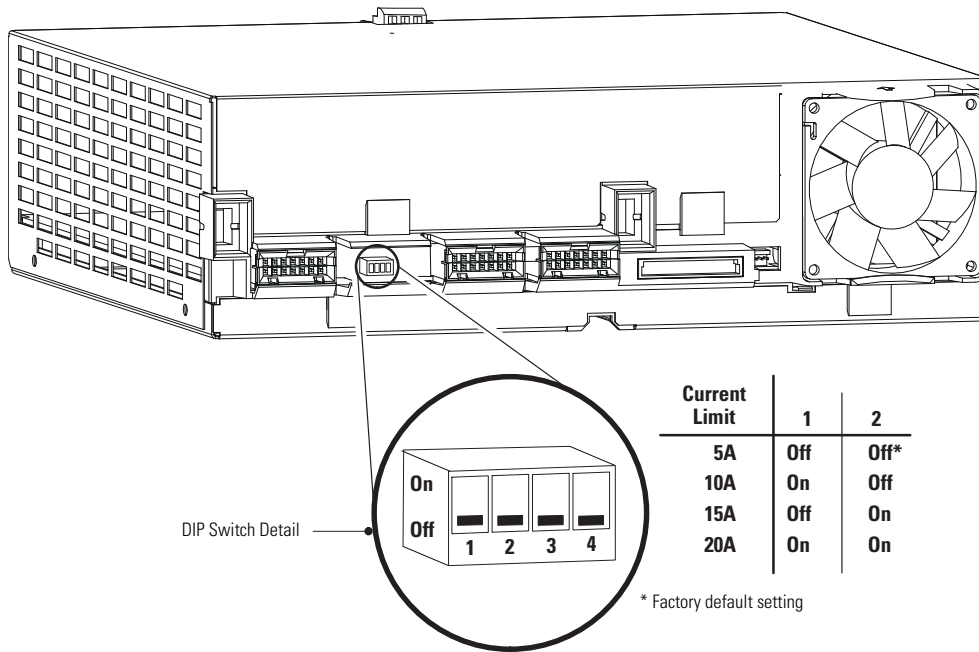


Figure 1. Battery Charger Module (Rear View)

The external battery cabinet may have input power hardwired through rigid or flexible conduit, as shown in Figure 2, or input power may be supplied through a plug-terminated line cord (requires the purchase of a line cord kit). Besides input power, the external battery cabinet has a cable or conduit connection to the UPS cabinet. It may also have a cable or conduit to additional external battery cabinets.

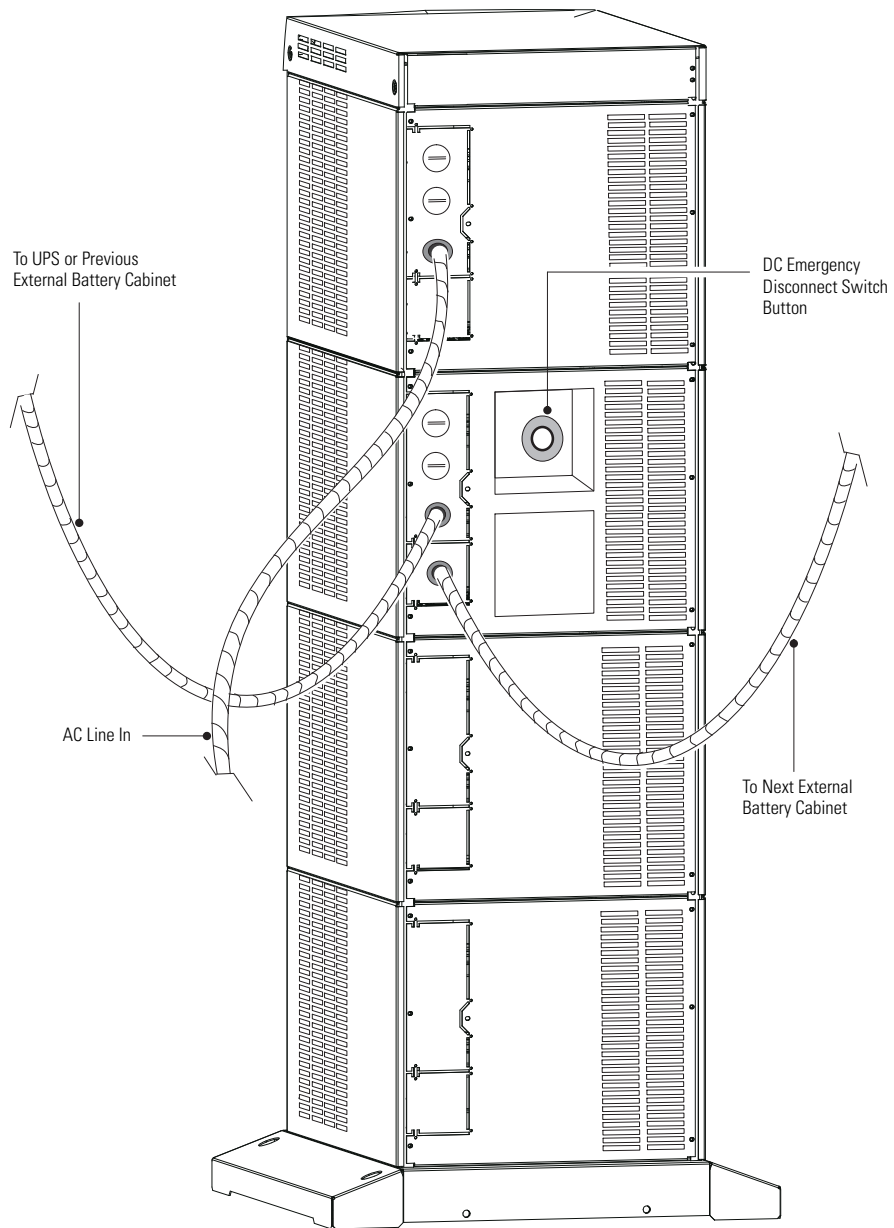


Figure 2. External Battery Cabinet for Charger Modules

Chapter 2 Installation

Eaton 9170+ battery charger modules can be plugged into any UPS cabinet slot above the battery modules, but below the power modules. Battery charger modules may be installed in only one type of external battery cabinet, the ASY-0739 12-slot external battery cabinet (top three slots only). Plugging them into the other slots, or other types of external battery cabinet, can result in damage.

NOTE Do not block the cabinet's ventilation holes on the sides or the back.

Cabinet Preparation

Follow the procedures in the *Eaton 9170+ UPS (3-18 kVA) User's Guide* for:

- Equipment clearances
- Installing the UPS cabinet and optional external battery cabinets

If additional external battery cabinets are to be used for battery charger modules, install input power wiring to each additional cabinet (see Figure 3). Table 2 shows required wire sizes based upon the number of battery charger modules.

For each 12-slot external battery cabinet, stabilizer brackets must be installed. If required, also install a floor anchor kit as described in the *Eaton 9170+ UPS (3-18 kVA) User's Guide*.

NOTE The ASY-0739 12-slot external battery cabinet must be wired for input power from the utility AC power supply.

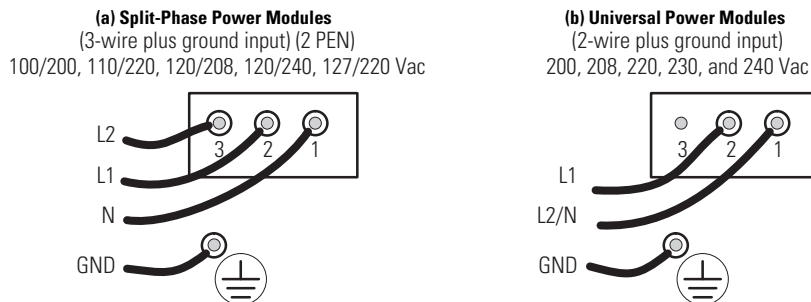



Figure 3. Input Power Wiring to ASY-0739 External Battery Cabinet

Table 2. Required Input Wiring for ASY-0739 External Battery Cabinet

Number of Charger Modules	Input Circuit Breaker Rating	75°C Copper Wire Size	Conductor Screw Torque
1	15A	14/12 AWG	2.3 Nm (20 lb in)
2	30A	10 AWG	2.3 Nm (20 lb in)
3	45A	8 AWG	2.8 Nm (25 lb in)


DC Cabling Between Cabinets

Refer to “Battery Cabinet Installation” in the *Eaton 9170+ UPS (3-18 kVA) User’s Guide* for the procedure to connect the cable assembly between the external battery cabinet and the UPS cabinet, or to additional external battery cabinets.

NOTE  The cabinet-to-cabinet DC wiring starts in the second-from-top section of the UPS and daisy-chains to the external battery cabinet entrance panels located adjacent to the DC Emergency Disconnect Switches. Note that ASY-0739 has an entrance panel on its top module which only accommodates AC input for chargers, not DC connections. See Figure 2 on page 9 for the proper location of cabinet-to-cabinet wiring.

Setting DIP Switches

The DIP switches on the rear panel of the battery charger module are functional only when the module is installed in an external battery cabinet. The DIP switches control two functions: the output current limit and a periodic float charging to equalize all battery capacities.

NOTE  When the module is placed in the UPS cabinet, do not set the DIP switches. Set the DIP switches ONLY if the battery charger module is placed in the ASY-0739 12-slot external battery cabinet. The ASY-0739 is the only battery cabinet that can accommodate battery charger modules (top three slots only).

Output Current Limit

The battery charger module is capable of producing up to 5A, 10A, 15A, or 20A when installed in an external battery cabinet. Discharged batteries must be recharged at an optimum rate, neither too quickly nor too slowly. For optimum charging of batteries, you must set DIP switches 1 and 2.

Follow the guidelines in Table 3 to determine the proper output current setting and set DIP switches 1 and 2 accordingly (see Figure 4).

Table 3. Output Current Limit Settings

Output Current Limit	Minimum Requirement	DIP Switch 1	DIP Switch 2
5A	2 battery strings (7.2 Ah)	Off	Off*
10A	4 battery strings (14.4 Ah)	On	Off
15A	6 battery strings (21.6 Ah)	Off	On
20A	8 battery strings (28.8 Ah)	On	On

NOTE A battery string is made up of two battery modules.

* Factory-default setting

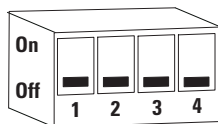


Figure 4. DIP Switches

Periodic Float Charge

To enable automatic float (or equalize) charging of the battery modules every 30 days, set DIP switch 3 to ON.

**NOTE**

When more than one battery charger module is installed in ASY-0739, only one of them should have Periodic Float Charge set to ON.

Reserved Switch

The function of DIP switch 4 is reserved; it should remain in the OFF position.

Battery Charger Module Installation

To install the battery charger modules into the UPS or external battery cabinet:

**NOTE**

Place battery charger modules above the battery modules in the UPS cabinet, or in any of the top three slots of the ASY-0739 12-slot external battery cabinet.

**CAUTION**

A maximum, total combination of seven (7) power modules and battery charger modules are allowed in the UPS cabinet. If additional battery charger modules are needed for the system, you must install them in ASY-0739 cabinets.

1. Remove the front cover(s) of the cabinet.
The covers have spring latches on the left and right sides that hold them in place.
2. Insert the battery charger modules into the cabinet. To insert a battery charger module:
Lower the front slightly and lift the rear edge over the safety stop on the center support rail. Keep the module handle extended until the module is fully inserted.
Raise the battery charger module handle to secure the module into the cabinet. Be sure the handle latch snaps into place. Tighten the thumbscrew on the handle.
3. Reinstall the front cover(s).
4. Turn on the UPS according to the *Eaton 9170+ UPS (3-18 kVA) User's Guide*.

Installation

Chapter 3 Operation

The Eaton 9170+ battery charger module operates in two automatic modes:

- As a charger module within the UPS cabinet under control of the UPS power modules
- As an independent charger module located in an external battery cabinet containing battery modules for the UPS system

UPS Cabinet Operation

When the battery charger module is installed in the UPS cabinet, it communicates through a controller area network (CAN) bus with the power modules. The power modules monitor and control the battery charger. Alarm conditions detected by the battery charger module are logged and announced by the UPS system (refer to the *Eaton 9170+ UPS (3-18 kVA) User's Guide*). Normal output voltage is 133 Vdc.

External Battery Cabinet Operation

When the battery charger module is installed in an external battery cabinet, it has no communication path with the UPS power modules. Therefore, it controls its own operation, independent of any system information within the power modules.

The module output current limit is set by the rear panel DIP switches. An audible alarm signals module status and alarm conditions (see "Troubleshooting" on page 23). Normal output voltage is 133 Vdc.

Output Foldback

If the battery charger module senses a charged-battery condition, it folds back its output voltage to prevent overcharging system batteries. Output current is controlled by power modules on the UPS CAN bus or by the rear panel DIP switches.

Chapter 4 Specifications

This chapter provides specifications for battery charger modules.

Table 4. Model Specifications for Universal Power Modules (ASY-0528 and ASY-0674)

Three-Slot Cabinet					
Optional Chargers	UPS kVA/Watts	Input Current for 200/208/220/230/240V	Output Current for 200/208/220/230/240V	Recommended Input Service	Heat Dissipation
NA	3/2100	14/13.5/13/12.5/12A	15/14.5/14/13/12.5A	25A	285W (0.98 kBTU/hr)
Six-Slot Cabinet					
CAUTION: Do NOT install more than three power and/or battery charger modules in a 6-slot cabinet.					
Optional Chargers	UPS kVA/Watts	Input Current for 200/208/220/230/240V	Output Current for 200/208/220/230/240V	Recommended Input Service	Heat Dissipation
0	3/2100	14/13.5/13/12.5/12A	15/14.5/14/13/12.5A	25A	285W (0.98 kBTU/hr)
1	3/2100	30/29.5/29/28.5/28A	15/14.5/14/13/12.5A	40A	570W (1.95 kBTU/hr)
2	3/2100	46/45.5/45/44.5/44A	15/14.5/14/13/12.5A	60A	860W (2.93 kBTU/hr)
0	6/4200	28/27/26/25/24A	30/29/28/26/25A	40A	570W (1.95 kBTU/hr)
1	6/4200	44/43/42/41/40A	30/29/28/26/25A	60A	860W (2.93 kBTU/hr)
0	9/6300	42/40.5/39/37.5/36A	45/43.5/42/39/37.5A	60A	860W (2.93 kBTU/hr)
Nine- and Twelve-Slot Cabinet					
CAUTION: Do NOT install more than seven power and/or battery charger modules in a 9- or 12-slot cabinet.					
Optional Chargers	UPS kVA/Watts	Input Current for 200/208/220/230/240V	Output Current for 200/208/220/230/240V	Recommended Input Service	Heat Dissipation
0	3/2100	14/13.5/13/12.5/12A	15/14.5/14/13/12.5A	25A	285W (0.98 kBTU/hr)
1	3/2100	30/29.5/29/28.5/28A	15/14.5/14/13/12.5A	40A	570W (1.95 kBTU/hr)
2	3/2100	46/45.5/45/44.5/44A	15/14.5/14/13/12.5A	60A	860W (2.93 kBTU/hr)
3	3/2100	62/61.5/61/60.5/60A	15/14.5/14/13/12.5A	80A	1145W (3.90 kBTU/hr)
4	3/2100	78/77.5/77/76.5/76A	15/14.5/14/13/12.5A	100A	1430W (4.88 kBTU/hr)
5	3/2100	94/93.5/93/92.5/92A	15/14.5/14/13/12.5A	125A	1720W (5.85 kBTU/hr)
0	6/4200	28/27/26/25/24A	30/29/28/26/25A	40A	570W (1.95 kBTU/hr)
1	6/4200	44/43/42/41/40A	30/29/28/26/25A	60A	860W (2.93 kBTU/hr)
* Maximum current rating for the cabinet size. If an additional charger is desired, it must be installed in external battery cabinet ASY-0739.					

Table 4. Model Specifications for Universal Power Modules (ASY-0528 and ASY-0674) (Continued)

Three-Slot Cabinet					
Optional Chargers	UPS kVA/Watts	Input Current for 200/208/220/230/240V	Output Current for 200/208/220/230/240V	Recommended Input Service	Heat Dissipation
2	6/4200	60/59/58/57/56A	30/29/28/26/25A	80A	1145W (3.90 kBTU/hr)
3	6/4200	76/75/74/73/72A	30/29/28/26/25A	100A	1430W (4.88 kBTU/hr)
4	6/4200	92/91/90/89/88A	30/29/28/26/25A	125A	1720W (5.85 kBTU/hr)
5	6/4200	102A*	30/29/28/26/25A	125A	1995W (6.75 kBTU/hr)
0	9/6300	42/40.5/39/37.5/36A	45/43.5/42/39/37.5A	60A	860W (2.93 kBTU/hr)
1	9/6300	58/56.5/55/53.5/52A	45/43.5/42/39/37.5A	80A	1145W (3.90 kBTU/hr)
2	9/6300	74/72.5/71/69.5/68A	45/43.5/42/39/37.5A	100A	1430W (4.88 kBTU/hr)
3	9/6300	90/88.5/87/85.5/84A	45/43.5/42/39/37.5A	125A	1720W (5.85 kBTU/hr)
4	9/6300	102A*	45/43.5/42/39/37.5A	125A	1995W (6.75 kBTU/hr)
0	12/8400	56/54/52/50/48A	60/58/56/52/50A	80A	1145W (3.90 kBTU/hr)
1	12/8400	72/70/68/66/64A	60/58/56/52/50A	100A	1430W (4.88 kBTU/hr)
2	12/8400	88/86/84/82/80A	60/58/56/52/50A	125A	1720W (5.85 kBTU/hr)
3	12/8400	102/102/100/98/96A*	60/58/56/52/50A	125A	1995W (6.75 kBTU/hr)
0	15/10500	70/67.5/65/62.5/60A	75/72.5/70/65/62.5A	100A	1430W (4.88 kBTU/hr)
1	15/10500	86/83.5/81/78.5/76A	75/72.5/70/65/62.5A	125A	1720W (5.85 kBTU/hr)
2	15/10500	102/99.5/97/94.5/92A*	75/72.5/70/65/62.5A	125A	1995W (6.75 kBTU/hr)
0	18/12600	84/81/78/75/72A	90/87/84/78/75A	125A	1720W (5.85 kBTU/hr)
1	18/12600	100/97/94/91/88A*	90/87/84/78/75A	125A	1995W (6.75 kBTU/hr)

* Maximum current rating for the cabinet size. If an additional charger is desired, it must be installed in external battery cabinet ASY-0739.

Table 5. Model Specifications for Split-Phase Power Modules (ASY-0673)

Three-Slot Cabinet					
Optional Chargers	UPS kVA/Watts	Input Current (200V)	Output Current (100/200V, 110/220V, 120/240V)	Recommended Input Service	Heat Dissipation
NA	3/2500	16A*	15A, 14A, 12.5A	25A	285W (0.98 kBTU/hr)
Six-Slot Cabinet					
CAUTION: Do NOT install more than three power and/or battery charger modules in a 6-slot cabinet.					
Optional Chargers	UPS kVA/Watts	Input Current (200V)	Output Current (100/200V, 110/220V, 120/240V)	Recommended Input Service	Heat Dissipation
0	3/2500	16A	15A, 14A, 12.5A	25A	285W (0.98 kBTU/hr)
1	3/2500	32A	15A, 14A, 12.5A	40A	570W (1.95 kBTU/hr)
2	3/2500	48A*	15A, 14A, 12.5A	60A	860W (2.93 kBTU/hr)
0	6/5000	32A	30A, 28A, 25A	40A	570W (1.95 kBTU/hr)
1	6/5000	48A*	30A, 28A, 25A	60A	860W (2.93 kBTU/hr)
0	9/7500	48A*	45A, 42A, 37.5A	60A	860W (2.93 kBTU/hr)
Nine- and Twelve-Slot Cabinet					
CAUTION: Do NOT install more than seven power and/or battery charger modules in a 9- or 12-slot cabinet.					
Optional Chargers	UPS kVA/Watts	Input Current (200V)	Output Current (100/200V, 110/220V, 120/240V)	Recommended Input Service	Heat Dissipation
0	3/2500	16A	15A, 14A, 12.5A	25A	285W (0.98 kBTU/hr)
1	3/2500	32A	15A, 14A, 12.5A	40A	570W (1.95 kBTU/hr)
2	3/2500	48A	15A, 14A, 12.5A	60A	860W (2.93 kBTU/hr)
3	3/2500	64A	15A, 14A, 12.5A	80A	1145W (3.90 kBTU/hr)
4	3/2500	80A	15A, 14A, 12.5A	100A	1430W (4.88 kBTU/hr)
5	3/2500	96A	15A, 14A, 12.5A	125A	1720W (5.85 kBTU/hr)
0	6/5000	32A	30A, 28A, 25A	40A	570W (1.95 kBTU/hr)
1	6/5000	48A	30A, 28A, 25A	60A	860W (2.93 kBTU/hr)
2	6/5000	64A	30A, 28A, 25A	80A	1145W (3.90 kBTU/hr)
3	6/5000	80A	30A, 28A, 25A	100A	1430W (4.88 kBTU/hr)
* Maximum current rating for the cabinet size. If an additional charger is desired, it must be installed in external battery cabinet ASY-0739.					

Table 5. Model Specifications for Split-Phase Power Modules (ASY-0673) (Continued)

Optional Chargers	UPS kVA/Watts	Input Current (200V)	Three-Slot Cabinet		Recommended Input Service	Heat Dissipation
			Output Current (100/200V, 110/220V, 120/240V)			
4	6/5000	96A	30A, 28A, 25A		125A	1720W (5.85 kBTU/hr)
5	6/5000	102A*	30A, 28A, 25A		125A	1995W (6.75 kBTU/hr)
0	9/7500	48A	45A, 42A, 37.5A		60A	860W (2.93 kBTU/hr)
1	9/7500	64A	45A, 42A, 37.5A		80A	1145W (3.90 kBTU/hr)
2	9/7500	80A	45A, 42A, 37.5A		100A	1430W (4.88 kBTU/hr)
3	9/7500	96A	45A, 42A, 37.5A		125A	1720W (5.85 kBTU/hr)
4	9/7500	102A*	45A, 42A, 37.5A		125A	1995W (6.75 kBTU/hr)
0	12/10000	64A	60A, 56A, 50A		80A	1145W (3.90 kBTU/hr)
1	12/10000	80A	60A, 56A, 50A		100A	1430W (4.88 kBTU/hr)
2	12/10000	96A	60A, 56A, 50A		125A	1720W (5.85 kBTU/hr)
3	12/10000	102A*	60A, 56A, 50A		125A	1995W (6.75 kBTU/hr)
0	15/12500	80A	75A, 70A, 62.5A		100A	1430W (4.88 kBTU/hr)
1	15/12500	96A	75A, 70A, 62.5A		125A	1720W (5.85 kBTU/hr)
2	15/12500	102A*	75A, 70A, 62.5A		125A	1995W (6.75 kBTU/hr)
0	18/15000	96A	90A, 84A, 75A		125A	1720W (5.85 kBTU/hr)
1	18/15000	102A*	90A, 84A, 75A		125A	1995W (6.75 kBTU/hr)

* Maximum current rating for the cabinet size. If an additional charger is desired, it must be installed in external battery cabinet ASY-0739.

Table 6. Model Specifications for Split-Phase Power Modules (ASY-0567)

Three-Slot Cabinet					
Optional Chargers	UPS kVA/Watts	Input Current (200V)	Output Current (200V, 220V, 240V)	Recommended Input Service	Heat Dissipation
NA	3/2100	14A	15A, 14A, 12.5A	25A	285W (0.98 kBTU/hr)
Six-Slot Cabinet					
CAUTION: Do NOT install more than three power and/or battery charger modules in a 6-slot cabinet.					
Optional Chargers	UPS kVA/Watts	Input Current (200V)	Output Current (200V, 220V, 240V)	Recommended Input Service	Heat Dissipation
0	3/2100	14A	15A, 14A, 12.5A	25A	285W (0.98 kBTU/hr)
1	3/2100	30A	15A, 14A, 12.5A	40A	570W (1.95 kBTU/hr)
2	3/2100	46A	15A, 14A, 12.5A	60A	860W (2.93 kBTU/hr)
0	6/4200	28A	30A, 28A, 25A	40A	570W (1.95 kBTU/hr)
1	6/4200	44A	30A, 28A, 25A	60A	860W (2.93 kBTU/hr)
0	9/6300	44A	45A, 42A, 37.5A	60A	860W (2.93 kBTU/hr)
Nine- and Twelve-Slot Cabinet					
CAUTION: Do NOT install more than seven power and/or battery charger modules in a 9- or 12-slot cabinet.					
Optional Chargers	UPS kVA/Watts	Input Current (200V)	Output Current (200V, 220V, 240V)	Recommended Input Service	Heat Dissipation
0	3/2100	14A	15A, 14A, 12.5A	25A	285W (0.98 kBTU/hr)
1	3/2100	30A	15A, 14A, 12.5A	40A	570W (1.95 kBTU/hr)
2	3/2100	46A	15A, 14A, 12.5A	60A	860W (2.93 kBTU/hr)
3	3/2100	62A	15A, 14A, 12.5A	80A	1145W (3.90 kBTU/hr)
4	3/2100	78A	15A, 14A, 12.5A	100A	1430W (4.88 kBTU/hr)
5	3/2100	94A	15A, 14A, 12.5A	125A	1720W (5.85 kBTU/hr)
0	6/4200	28A	30A, 28A, 25A	40A	570W (1.95 kBTU/hr)
1	6/4200	44A	30A, 28A, 25A	60A	860W (2.93 kBTU/hr)
2	6/4200	60A	30A, 28A, 25A	80A	1145W (3.90 kBTU/hr)
3	6/4200	76A	30A, 28A, 25A	100A	1430W (4.88 kBTU/hr)
* Maximum current rating for the cabinet size. If an additional charger is desired, it must be installed in external battery cabinet ASY-0739.					

Table 6. Model Specifications for Split-Phase Power Modules (ASY-0567) (Continued)

Optional Chargers	UPS kVA/Watts	Three-Slot Cabinet			
		Input Current (200V)	Output Current (200V, 220V, 240V)	Recommended Input Service	Heat Dissipation
4	6/4200	92A	30A, 28A, 25A	125A	1720W (5.85 kBTU/hr)
5	6/4200	102A*	30A, 28A, 25A	125A	1995W (6.75 kBTU/hr)
0	9/6300	42A	45A, 42A, 37.5A	60A	860W (2.93 kBTU/hr)
1	9/6300	58A	45A, 42A, 37.5A	80A	1145W (3.90 kBTU/hr)
2	9/6300	74A	45A, 42A, 37.5A	100A	1430W (4.88 kBTU/hr)
3	9/6300	90A	45A, 42A, 37.5A	125A	1720W (5.85 kBTU/hr)
4	9/6300	102A*	45A, 42A, 37.5A	125A	1995W (6.75 kBTU/hr)
0	12/8400	56A	60A, 56A, 50A	80A	1145W (3.90 kBTU/hr)
1	12/8400	72A	60A, 56A, 50A	100A	1430W (4.88 kBTU/hr)
2	12/8400	88A	60A, 56A, 50A	125A	1720W (5.85 kBTU/hr)
3	12/8400	102A*	60A, 56A, 50A	125A	1995W (6.75 kBTU/hr)
0	15/10500	70A	75A, 70A, 62A	100A	1430W (4.88 kBTU/hr)
1	15/10500	86A	75A, 70A, 62A	125A	1720W (5.85 kBTU/hr)
2	15/10500	102A*	75A, 70A, 62A	125A	1995W (6.75 kBTU/hr)
0	18/12600	84A	90A, 84A, 75A	125A	1720W (5.85 kBTU/hr)
1	18/12600	100A	90A, 84A, 75A	125A	1995W (6.75 kBTU/hr)

* Maximum current rating for the cabinet size. If an additional charger is desired, it must be installed in external battery cabinet ASY-0739.

Chapter 5 Troubleshooting

Alarm Messages

When the Eaton 9170+ battery charger module is located in a UPS cabinet, the UPS displays alarm messages which involve the battery charger module. Refer to “Troubleshooting” in the *Eaton 9170+ UPS (3-18 kVA) User's Guide*.

Audible Alarms and UPS Conditions

When the battery charger module is located in an external battery cabinet, the battery charger module uses an audible alarm feature to alert you of potential power problems. When the alarm is activated, the battery charger module beeps in different intervals according to a particular condition. Use Table 7 to determine and resolve the alarms and conditions.

Table 7. Battery Charger Module Audible Alarms

Audible Alarm	Condition	Action
1 short (0.5 sec)	Startup	Nothing. Module is operating normally.
1 short, pause, 2 short	Shorted output error	Call your service representative.
1 short, pause, 3 short	Battery overvoltage error	Call your service representative.
1 short, pause, 4 short	Charger failure	Call your service representative.

Battery Charger Module Replacement

The battery charger module may be hot-swapped in a manner similar to replacing power modules or battery modules. This feature enables you to replace the module without disconnecting the load or damaging the UPS.

Use care in removing and installing battery charger modules. To replace a battery charger module:

1. Remove the front cover(s) of the cabinet.
The covers have spring latches on the left and right sides that hold them in place.
2. Loosen the thumbscrew on the module handle. Press down on the latch release at the center of the module handle and pull the handle down.
As the module handle fully extends, the module disconnects. Slide the module slowly out of the cabinet.
3. Use two hands to support the module. When the module is fully extended, lower the front slightly and lift the rear edge over the safety stop on the center support rail.
4. Treat the original and replacement modules with care to avoid damaging connectors or internal circuitry. Label the original module with masking tape or some other identifier. Record the serial number of the replacement module for your warranty.
5. If replacing a battery charger module in an external battery cabinet, verify that the DIP switches on the replacement are set to the same positions as the original.
6. Insert the replacement module by sliding it carefully into the cabinet. Lower the front slightly and lift the rear edge over the safety stop on the center support rail. Keep the module handle extended until the module is fully inserted.
7. Raise the battery charger module handle to secure the module into the cabinet. Be sure the handle latch snaps into place. Tighten the thumbscrew on the handle.
8. Reinstall the front cover(s).

Service and Support

If you have any questions or problems with the UPS, call your **Local Distributor** or the **Help Desk** at one of the following telephone numbers and ask for a UPS technical representative.

United States: **1-800-356-5737**
Canada: **1-800-461-9166 ext 260**
All other countries: **Call your local service representative**

Please have the following information ready when you call the **Help Desk**:

- Model number
- Serial number
- Version number (if available)
- Date of failure or problem
- Symptoms of failure or problem
- Customer return address and contact information

If repair is required, you will be given a Returned Material Authorization (RMA) Number. This number must appear on the outside of the package and on the Bill Of Lading (if applicable). Use the original packaging or request packaging from the **Help Desk** or distributor. Units damaged in shipment as a result of improper packaging are not covered under warranty. A replacement or repair unit will be shipped, freight prepaid for all warrantied units.

**NOTE**

For critical applications, immediate replacement may be available. Call the **Help Desk** for the dealer or distributor nearest you.



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