



4-BANK INTERNATIONAL BATTERY TENDER®  
BATTERY MANAGEMENT SYSTEM  
PRODUCT INFORMATION

**International Battery Tender® Battery Management System  
4-Bank Model: 12V1.25A per Channel**

**The International  
Battery Tender®  
4-Bank Battery Management  
System**

**12 Volt, 1.25 Amp  
per Channel**



**GENERAL DESCRIPTION:**

The 4-Bank International Battery Tender® Battery Management System is a desktop, portable, switch-mode power converter that has a true DC output at a maximum power level of approximately 18 watts per channel. The maximum output charging current is 1.25 amps per channel.

**NOTE:** With the same internal circuitry as the International Battery Tender® battery charger, the 4-Bank Battery Management System is simply another configuration of the next step in the technological evolution of the Battery Tender® charger family. The adaptation of switch-mode power conversion technology to this product line provides a more versatile, compact, lightweight, electrically and thermally efficient delivery system for essentially the same reliable functionality of the Battery Tender® Plus battery charger. Another significant benefit is that the International Battery Tender® 4-Bank Battery Management System has a true universal electrical input that allows it to be used anywhere in the world (where there is electric power available). All that is required is the correct AC power cord to connect to the local electric service.

**OUTPUT CABLE CONNECTIONS:** The battery charger DC output cable has a molded, quick disconnect plug. The ring terminal, alligator clip, and cigarette adapter output cable accessories all contain the mating plug. There is also a 25 ft long output extension cable that can be used with any or all of the 4 DC outputs.

**STATUS INDICATOR LIGHTS:** The following describes the operation of the status indicator lights:

- **AMBER** - When the amber light is on, the battery charger is in the process of fully charging the battery. In order to properly charge large capacity batteries, the charger may remain in this mode for several hours or even days.



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- **AMBER FLASHING** - When the green light is flashing, and the red light is on, the battery is greater than 80% charged and may be removed from the charger and used if necessary. Leave the battery on charge until the green light is solid whenever possible. Once the green light begins to flash, it will remain flashing until either the battery charger output current drops below 0.1 amp, or until 6 hours has elapsed.
- **GREEN** - When the green light is lit, the battery charger is in the storage mode of charge. In this mode the charger will maintain the battery at full charge.

### **SPECIAL TROUBLESHOOTING INFORMATION:**

- 1) NEITHER OF THE CHARGER STATUS INDICATOR LIGHTS TURN ON:**
  - a) Disconnect the charger AC power plug from the AC outlet and recheck that the battery charger alligator clips or ring terminals are connected to the correct polarity battery terminals and that they are making a clean, tight connection.
  - b) Check to make sure that the AC outlet is supplying power by plugging in another appliance like a lamp, or check the outlet voltage with a voltmeter.
  
- 2) THE STORAGE/FLOAT MAINTENANCE STATUS INDICATOR LIGHT (GREEN LIGHT) GOES ON IMMEDIATELY WHEN CHARGING A BATTERY KNOWN TO BE DISCHARGED:**
  - a) The battery may be defective. Take the battery to the dealer to be tested.
  - b) The electrical connections between the charger and the battery may not be completely secured.
  
- 3) AFTER THE STORAGE/FLOAT MAINTENANCE STATUS INDICATOR LIGHT (GREEN LIGHT) HAS BEEN ON, AND THE AC POWER IS REMOVED FROM THE CHARGER AND THEN IMMEDIATELY RECONNECTED, IT SEEMS TO TAKE TOO MUCH TIME FOR THE GREEN LIGHT TO COME ON AGAIN.**
  - a) This is **NORMAL OPERATION** for the International Battery Tender®.
  - b) Whenever AC power is removed from the charger, including momentary AC power outages, the charge cycle resets. Therefore, the battery charge current either has to drop to below 0.1 amp or 6 to 8 must elapse before the green light stops flashing.
  
- 4) AFTER THE STORAGE/FLOAT MAINTENANCE STATUS INDICATOR LIGHT (GREEN LIGHT) HAS BEEN ON, THE AMBER LIGHT COMES ON.**
  - a) This is **NORMAL OPERATION** for the International Battery Tender®.
  - b) There has been a momentary AC power outage that reset the charge cycle.
  - c) There is some other load or appliance drawing power from the battery. When the battery voltage drops below 12.0V to 12.5V, the charge cycle resets.



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<b>International Battery Tender® 4-Bank Battery Mgmt Sys</b>	
Charger Specification Summary	
<b>SOFTWARE:</b>	<b>STANDARD</b>
<b>Deltran Part Number:</b>	<b>022-0148</b>
<b>Nominal Output:</b>	<b>4 Independent DC Outputs</b>
<b>Voltage:</b>	<b>12 Volts</b>
<b>Current:</b>	<b>1.25 Amps</b>
<b>Input Voltage: (Universal Input)</b>	<b>100 to 240 VAC</b>
<b>Input Frequency:</b>	50 / 60 Hz
Maximum Input Current:	2.0 Arms @ 100 VAC 1.0 Arms @ 240 VAC
Nominal Efficiency:	85%
Nominal Power Factor:	0.9
<b>Charger Output:</b>	<b>4 Independent DC Outputs</b>
Maximum Power: @ 25 °C	18 Watts per Channel (+/- 2%) Watts
Maximum Current: During Bulk Charge	1.25 Amps per Channel (+/- 2%)
Absorption Voltage:	14.4 VDC = (2.4 vpc)
Absorption to Float Transition:	<b>Charge Current drops to below 0.1 Amps. OR 6 to 8 hours elapse.</b>
Equalization Voltage:	NA
Float Voltage:	13.2 VDC = (2.4 vpc)
Charge Reset: Battery Voltage Threshold:	12 to 12.5 VDC (2 to 2.08 vpc)
<b>Output Regulation:</b>	
Line (Typical):	Less than 1%
<b>Electrical Isolation:</b>	
Input / Output:	2500 VAC
Input / Chassis:	2500 VAC
Output / Chassis:	500 VAC
<b>Operating Temp:</b>	-20°C to 50°C up to 200 VAC, -20°C to 30°C over 200 VAC
<b>Dimensions: Charger Case</b>	8.8 (224) L x 7.0 (178) W x 3.5 (89) H in (mm)
<b>Weight: Base Unit w/o Accy</b>	2.75 lb (1.25 kg)
<b>Shipping Carton Dimensions</b>	13.5 (343) L x 10.5 (267) W x 6.5 (165) H in (mm)
<b>Shipping Weight:</b>	<b>Approximately 5 lbs.</b>
<b>Enclosure:</b>	94VO Flame Retardant Polymer
<b>Special Features:</b>	
Short Circuit Protection:	YES
Reverse Polarity Protection:	YES
Spark Proof:	YES
Temperature Compensation:	YES
Agency Listings: UL, ETL, CSA, etc.	The Int'l BT 4-Bank Battery Mgmt System bears the CE mark and complies with both UL-1236 and CSA 22.2 Contact the office in DeLand, FL for information on agency listings. Phone: 386-736-7900

**Table 1** Spec Sheet: Int'l Battery Tender® 4-Bank Battery Mgmt System



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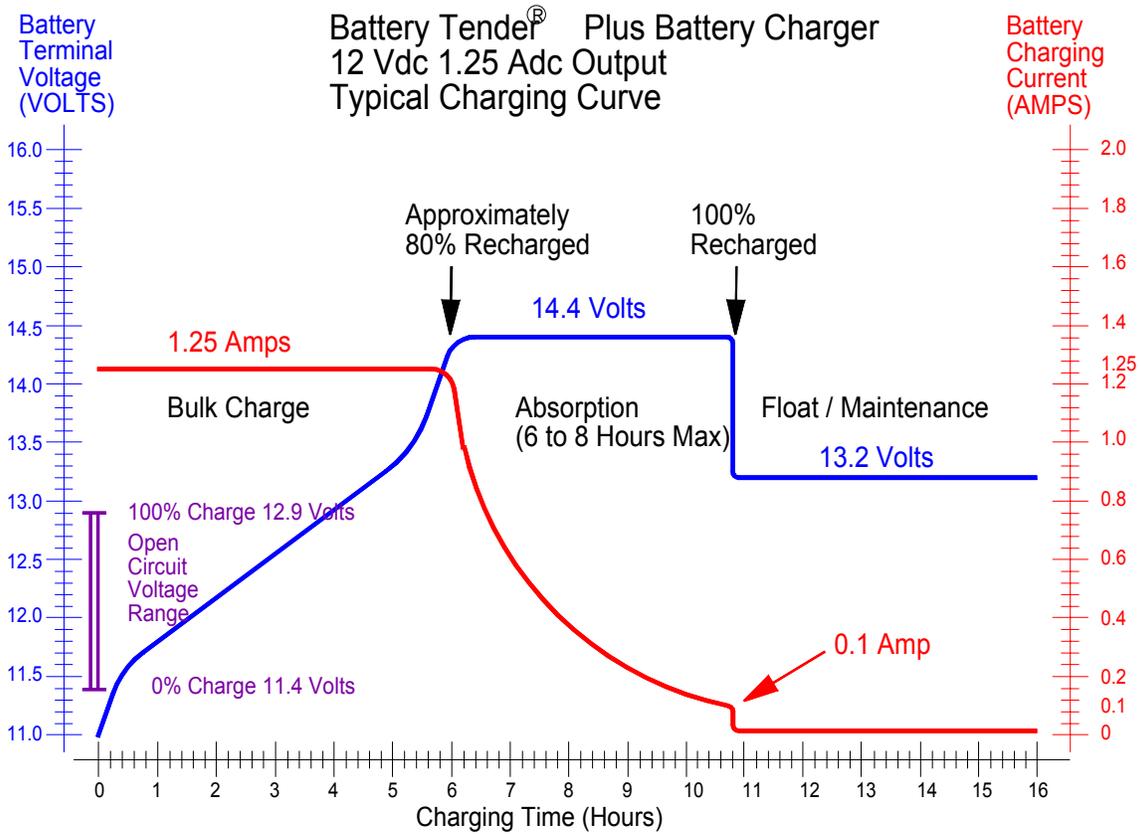
**Int'l Battery Tender® 4-Bank Battery Mgmt Sys: 12V1.25A:**

**Stage 1) Bulk Charge:** Amber Light On, Green Light Off, Constant Current = 1.25 Amps, Transition to Stage 2, Absorption Charge when battery voltage reaches 14.4 VDC.

**Stage 2) Absorption Charge:** Amber Light On, Absorption Voltage = 14.4 VDC  
Transition to Float Charge when battery charging current drops below 0.1 amp or until 6 to 8 hours have elapsed.

Stage 3) There is no Equalization Charge, Go directly to stage 4.

**Stage 4) Float Charge:** Amber Light Off, Green Light On. Float Voltage = 13.2 VDC.  
If an external load is applied to the battery while the charger is in stage 4, Float Charge, and if the battery voltage drops below a range between 12.0 to 12.5 VDC, then the charge cycle restarts.



**Figure 1 Charging Graph: Battery Tender® Plus 12V1.25A**

*This algorithm is implemented in the new International Battery Tender® 4-Bank Battery Management System.*