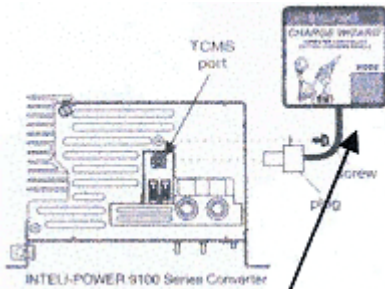


PD9105 Charge Wizard The Intelligent Way to Charge Batteries



Features

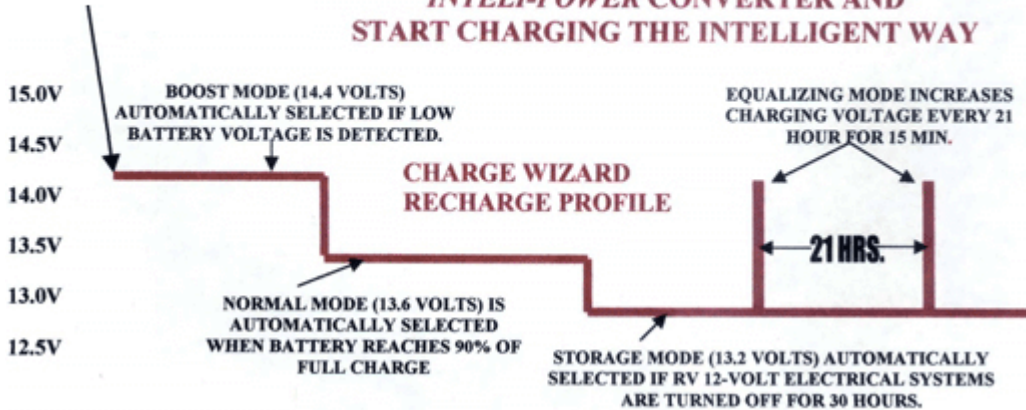
The **Charge Wizard** is designed to plug into the standard **TCMS** port located on the front of all models of the Intel-Power 9100 Series Converters (see drawing below). The **Charge Wizard** is a microprocessor-controlled unit that constantly monitors the RV battery voltage and then selects one of three charging voltages and one of four operating modes to properly re-charge or maintain the RV battery. The addition of the **Charge Wizard** makes your 9100 Series converter an intelligent battery charger that will safely and rapidly recharge a discharged battery by selecting the **Boost Mode** (14.4V) of operation. Once the battery reaches 90% of full charge, the **Charge Wizard** automatically selects the **Normal Mode** (13.6V) to safely complete the charge. The **Storage Mode** (13.2V) is automatically selected after 30 hours of non-use of the 12-volt RV electrical systems. The lower charging voltage in the **Storage Mode** of operation reduces battery gassing and water usage, while maintaining the charge. Every 21 hours when the system is operating in the **Storage Mode**, the **Charge Wizard** will automatically switch to the **Equalizing Mode** of operation. The **Equalizing Mode** increases the charging voltage up to 14.4 volts for 15 minutes. This increased voltage mixes up the battery electrolyte and prevents battery stratification and the resulting problems of battery sulfation.



Converter output voltage is controlled by Charge Wizard

Charge Wizard installation is easy

JUST PLUG IT INTO YOUR 9100 SERIES INTEL-POWER CONVERTER AND START CHARGING THE INTELLIGENT WAY



Products in this section are covered by the following patent: 5,982,643. Other patents pending.

Inteli-Power 9100, Total Charging Management System, TCMS, TCMS Interface and Charge Wizard are registered trademarks of Progressive Dynamics.

OPERATION

Automatic

- The Charge Wizard automatically selects the optimum battery charging mode— depending on battery charge.

Manual

- Press and hold MODE switch, Charge Wizard will cycle between modes
- Boost Mode - indicator light will stay ON
- Normal Mode - indicator light will flash
- Storage Mode - indicator light will flash very slow, once in 3 seconds
- Charge Wizard will stay in the selected mode when switch is released

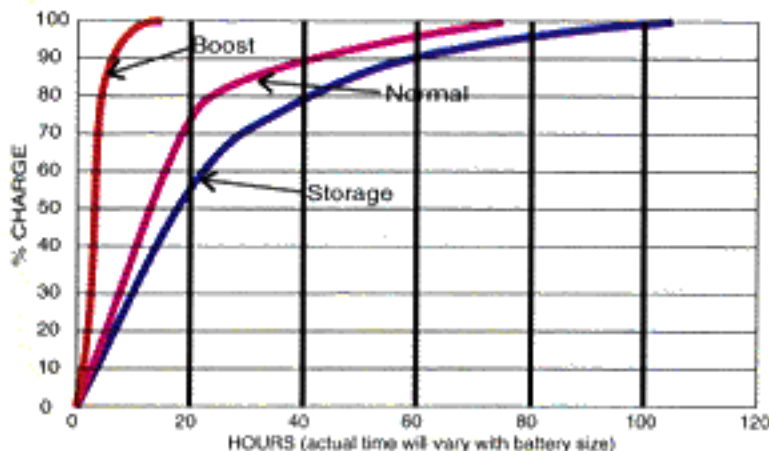
The Charge Wizard will automatically override as necessary to maintain optimum battery performance.

Charge Wizard Status

Indicator light	status
On	Boost mode
Fast Flash	Battery - full charge
Slow Flash	Battery - more than 50% charge
Very Slow Flash	Storage mode
Off	Battery - less than 50% charge

Charge Curves

Typical battery charging curves for the 55 amp INTELI-POWER 9100 Converter, using a fully discharged 125 Amp-hour battery. These curves show the percent of charge versus time with the converter in each of its three operating modes.



INTELI-POWER 9100
TCMS

CHARGE WIZARD®

- Plugs into all Intelli-Power 9100® Series Converters.
- Intelligently monitors 12V charging system automatically making adjustments.
- Reduces water usage and sulfation! Extends battery life!
- Features 3 "automatic" operating modes that can also be manually selected:

STORAGE: Ensures battery remains charged and reduces water boil-off during storage or long periods of inactivity. Output charging voltage is set to a nominal 13.2 volts. Converter remains in *Storage Mode* until it senses activity then Charge Wizard automatically switches to *Normal Mode*. Once daily while in the *Storage Mode*, a desulfation cycle activates to minimize sulfation* buildup.

NORMAL: Constantly monitors power usage and provides excellent charging capability. Output charging voltage is set to nominal 13.6 volts. When system is inactive for some time, Charge Wizard automatically switches to *Storage Mode*.

BOOST: Constantly monitors battery for voltage drop (predetermined level) and quickly recharges battery or boosts power when needed. Charge voltage is automatically increased to nominal 14.4 volts for a limited period or until battery exceeds set voltage level. Charge Wizard automatically switches to *Normal Mode* when battery is fully charged.

*Sulfation is a chemical action in batteries which forms a white deposit on the lead plates resulting in loss of battery capacity.

Patent #5,662,643
Other Patents Pending



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INTELI-POWER 9100
TCMS

COMPUTER-CONTROLLED BATTERY MONITOR/CHARGING MODULE CHARGE WIZARD®

- Fits all Intelli-Power 9100® Series Converters.
- Intelligently monitors 12 volt charging system automatically making adjustments.
- REDUCES WATER USAGE AND SULFATION. EXTENDS BATTERY LIFE.

#109480RA

OPERATION continued

The Charge Wizard is designed to be used with Progressive Dynamics Inc. INTELI-POWER 9100 Series Converters. The Charge Wizard controls the converter's charging system and automatically activates the optimum battery charging mode. Charging modes can also be activated manually.

Storage Mode

- Nominal no load charge of 13.2 volts is applied to the battery for long periods of storage without damaging the battery.
- **(Desulfation Cycle)** Every 21 hours the Charge Wizard will switch to the Boost Mode and apply 14.4 volts as an equalizing and desulfation charge for 15 minutes, to prevent acid stratification and clear the beginning of lead sulfate on the battery plates, and then return to the Storage Mode.
- Charge Wizard will automatically switch to Storage Mode when the battery is charged and no battery activity is detected.
- When battery activity is detected the Charge Wizard switches to Boost Mode applying an equalizing charge of 14.4 volts for one hour then switches to the Normal Mode.
- The Storage Mode can reverse the sulfation process and possibly provide extra life for older batteries.

Normal Mode

- Nominal no load charge of 13.6 volts is applied to the battery during normal use.
- Default mode.
- With the Charge Wizard, the charging system is maintained at the optimum setting for best battery performance.

Boost Mode

- Nominal no load charge of 14.4 volts charges the battery very quickly and helps prevent battery sulfation that reduces how well your battery performs.
- Boost Mode will only be enabled up to four hours, to prevent over charging the battery.
- Maintaining this level for long periods can lead to excessive water loss and overheating of your battery.
- Boost Mode is activated if the battery becomes discharged to a low level.
- Boost Mode is also activated when the system exits the Storage Mode.

INSTALLATION

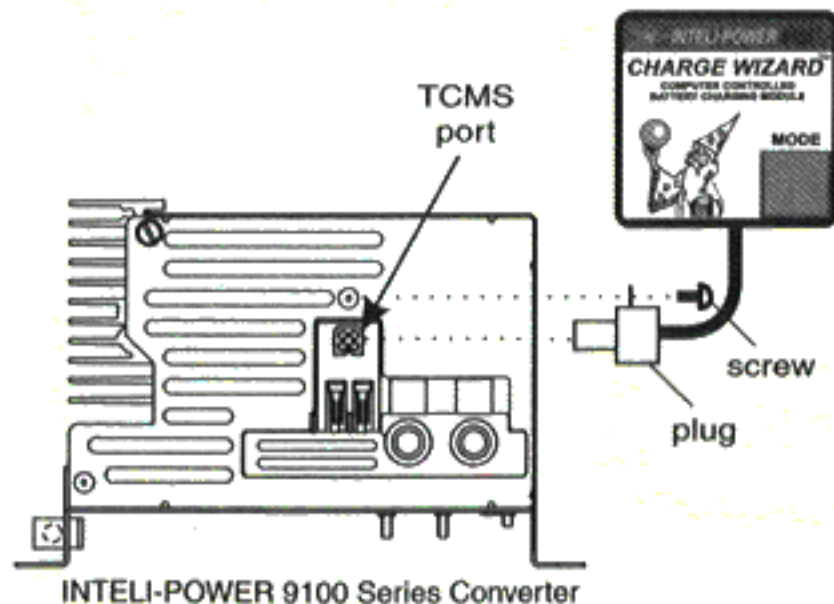
Inspect your INTELI-POWER 9100 Series Converter to be sure it is connected properly and in good working order. Refer to the converter owner's manual.

Mounting

- The Charge Wizard is not weather tight—Do not mount it where it will be exposed to the weather or wet conditions
- The Charge Wizard should be mounted close to converter to allow easy cable routing
- Remove mounting tape backing
- Attach Charge Wizard to clean smooth surface

Connection

- Converter must be OFF
- Remove screw above converter TCMS port
- Put Charge Wizard plug into converter TCMS port
- Fasten plug to converter with screw
- Turn converter ON



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TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	ACTION
Indicator light is not on	Battery is less than 50% charged	Reduce load requirements to allow the battery to recharge
No charge to battery	No AC power to converter	Check AC wiring
	Excessive loading of system	Reduce load requirements
	External Fuse(s) blown	Check battery for reverse polarity Replace fuse(s) with same type and rating
Low Output	Input voltage is less than 105 VAC or above 150 VAC	Correct input supply voltage
	Bad battery cell(s)	Replace battery
	Excessive load for converter	Reduce load requirements or install larger converter

VOLTAGE READING

The most accurate measurement of the battery's voltage must be made under a no-load condition. Disconnect the battery from any load or charger for at least 15 or 20 minutes before checking voltage.

11.7 Volts - Battery is not charged.

12.8 Volts - Ideal voltage, battery is fully charged. Maintaining this no-load voltage will help the battery to last as long as the manufacturer believes it will.

12.9-13.5 Volts - Indicate that energy taken from the batteries is being replaced by the converter.

13.6 Volts - A healthy battery can be maintained at this desirable state indefinitely with one precaution: electrolyte must not fall below the plate tops. Add distilled water to maintain the proper level.

14.1-14.4 Volts - Converter is in the boost mode. This setting will rapidly charge the battery.