

# 48V 36V 24V 12V DC DC - SCOTTY AI



## Smart Power, Perfectly Controlled

The Scotty AI is a next-generation bi-directional DC-DC power controller engineered to safely and efficiently manage energy flow between 12V, 24V, 36V, and 48V systems. Built on Safier's patented AI-driven control technology, it transforms how alternators charge lithium batteries with intelligent temperature protection, self-learning tuning, and full CAN-bus integration.

Problems with remote regulators (Balmar, Wakespeed, Zeus and others):

- No bidirectional integration - separate transformer based DC DC required
- No intelligent load control if engine is struggling under load at low RPM
- Load dumps if lithium BMS stops charge suddenly
- Field control wiring vulnerable on long runs

## Key Advantages

Two Options: Scotty 1500 (1.5 kW / 125A @ 12V) and Scotty 3000 (3.0 kW / 250A @ 12V or 24V)

Patented AI Auto-Tuning — no programming required; learns alternator behaviour automatically.

Load Dump is impossible — Bidirectional feature plus speed of response prohibits load dumps

Either High to Low or Low to High — Charging can be set up either way

Automatic Alternator Protection — monitors temperature and dynamically adjusts charging.

Temperature-Aware Charging — real-time alternator temperature compensation.

Plug-and-Play Setup — Wi-Fi tuning from any smartphone.

Full Bidirectional Power Flow — charge 24–48V from 12V or deliver 12V or 24V from 48V source.

Fast Power Conversion — Can operate 3000VA inverter on 12V side of 24V/36V/48V Lithium

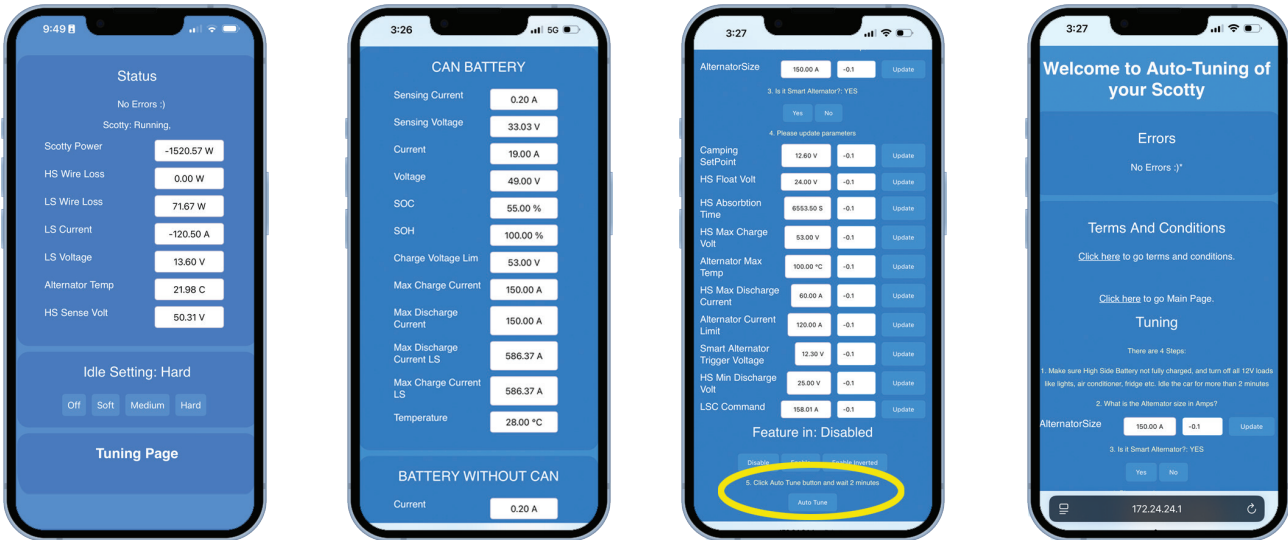
## How Scotty AI Works

Scotty AI acts as the bridge between your alternator and lithium batteries. It reads voltage, current, and temperature in real time, builds an adaptive charging map unique to that alternator, and adjusts output continuously to maintain maximum safe current. Compatible with Victron VE.CAN, NMEA 2000, and CAN-BMS systems.

Parameter	Scotty 1500	Scotty 3000
Max Power	1.5 kW both ways	3.0 kW both ways
Voltage Range	12–24V, 36V or 48 V	12–24V, 36V or 48 V; 24-48V
Efficiency	94%	94%
Operating Temp	-40°C ~ 105°C	-40°C ~ 105°C
Protection	IP66	IP66
CAN Ports	3	3

**Certifications: Scotty AI has passed testing and certifications for both CE approval and eMark ECE R10**

# Fully Controlled Variable Power DC DC



## Built-in Alternator Protection

Scotty AI uses the factory alternator's internal regulator without modification. It monitors thermal rise and dynamically adjusts current to protect against overheating and wear. Smart temperature algorithm learns alternator temperature versus current and time, reduces draw when hot, increases as it cools, and prevents premature alternator failure.

## AI-Driven Auto-tuning

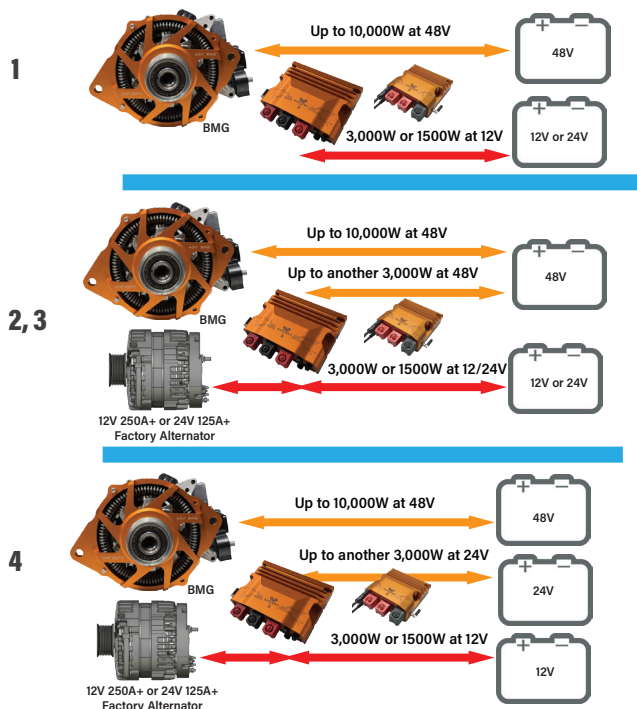
No setup or calibration required. Scotty AI's patented algorithm automatically maps voltage, current, and rate of change to identify the safest and fastest charge point.

Users can tune Scotty directly via Wi-Fi using a smartphone.

Three selectable power profiles: Soft, Medium, Hard — for different travel modes.

voltage

### 4 Ways of Using BMG and Scotty AI V3: 48V, 24V & 12V



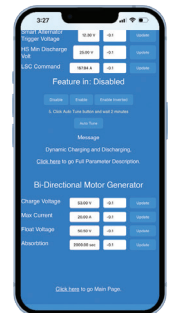
### Outboards and Hybrids

Scotty Ai V3 is a fully controlled variable power DC DC for banks charging and discharging.

This means Scotty Ai V3 can be deployed on new Hybrids with 48V BSG's which have sensitive power drawer. This also applies to outboard engines with a wide power capability and excessive draw at idle for both these examples will create major problems.

### Integrate with 10kW 48V Belt Motor Generator

Scotty Ai V3 integrated directly on CAN with the 10kW BMG. This means high power at 48V with a fully redundant 3kW power charge to the 48V side from Scotty Ai. Alternatively or simultaneously, supply power or charge a low side battery bank in either 12V or 24V.



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