

Five reasons to install an Engine Start Module from Maxwell:

- 1 It's easy to install.** The ESM fits into a conventional battery box. A qualified technician can install the module in about an hour.†
- 2 It's low maintenance.** The ESM is built around safe, dependable ultracapacitors that require little maintenance. Just install it and forget it.
- 3 It pays for itself.** The ESM virtually eliminates the cost and downtime of jump-starts associated with discharged or failed batteries.
- 4 It's ultra-reliable.** The ESM delivers power for hundreds of thousands of starts,* ensuring trouble-free starts and on-schedule deliveries.
- 5 It enables compliance.** With the ESM installed, compliance with anti-idling laws is enhanced. Drivers can reliably start after a night of running sleeper loads.



ESM installation in 3 and 4 battery banks.



†See user manual for full installation details

ESM product comparison

Specification	ULTRA 31/1800	ULTRA 31/900
Vehicle Type	Heavy Duty (Class 7-8)	Medium Duty (Class 3-6)
Diesel Engine Size (displacement)	7 L – 16 L	4 L – 6.9 L
Cold Cranking Amps**	1800 CCA	900 CCA
Peak Power	32.8 kW	16 kW
Input Voltage (B+ Terminal)	10 V – 18 V	
Output Voltage	15.0 V – 16.2 V (temperature dependent)	
Operating Temperature	-40°F to +149°F (-40°C to +65°C)	
Current Draw (on batteries)	25 A (max. during charging) < 10 mA when charged (sleep mode)	
Recharge Time	15 minutes	8 minutes
Weight	21 lbs (9.5 kg)	16 lbs (7.3 kg)
Shelf Life	4 years	4 years

ULTRA 31/1800



ULTRA 31/900



Scan to learn more about the ESM.

maxwell.com/esm

Sales Support Technical/Warranty Support
(877) 511-4324 (888) 890-3337

*Lead-acid batteries still power ECM/ECU. Results may vary. Additional terms and conditions, including the limited warranty, apply at the time of purchase. See the warranty details and enclosed information for applicable operating and use requirements.

**Ultracapacitor CCA is calculated differently than a battery using a different interval. Consult FOOTNOTES section of product datasheet for details.

MAXWELL TECHNOLOGIES, MAXWELL, MAXWELL CERTIFIED INTEGRATOR, ENABLING ENERGY'S FUTURE, BOOSTCAP, C CELL, D CELL and their respective designs and/or logos are either trademarks or registered trademarks of Maxwell Technologies, Inc. and may not be copied, imitated or used, in whole or in part, without the prior written permission from Maxwell Technologies, Inc. All contents copyright © 2015 Maxwell Technologies, Inc. All rights reserved. No portion of these materials may be reproduced in any form, or by any means, without prior written permission from Maxwell Technologies, Inc.

START STRONG™

Effectively eliminate costly jump-starts, late loads or Monday morning scramble with Maxwell's Engine Start Module.



Dependable performance and all-temperature starts. Every route. Every time.

To decrease jump-starts and costly service calls, fleet managers and owner operators across North America are installing our revolutionary Engine Start Module (ESM). It's not a battery. It's better. It uses our proven, power-dense ultracapacitors to reliably crank diesel engines for a successful start. Consistent starting means less downtime, fewer jump-starts and lower operating costs. Start strong. Start today. Start with Maxwell.



Plastic lid
Thermal weld (heat plate) to case



Electronics assembly
With DC-DC converter and controller electronics



Laser-welded cell pack
12 each 3000 Farad Maxwell ultracapacitor cells with plastic spacers and terminals



Polypropylene plastic case

Quick-burst power to crank

Rugged, lightweight and low maintenance, the ESM delivers the quick-burst power big diesel engines need to crank, providing consistent, reliable performance for hundreds of thousands of starts.

Batteries alone won't cut it*

Despite some advances, lead-acid batteries today work like they did fifty years ago. Which means that over time, in extreme conditions, they can degrade, falter and fail, stranding drivers and putting their loads at risk.

The ESM takes over all engine cranking—leaving batteries free to power cab loads, lift-gates, lights and radios. When the key turns, the engine cranks, even after a night of running sleeper loads on battery power.

How it works

Instead of a chemical reaction, ultracapacitors use an electrostatic field to store and deliver power. They charge and discharge rapidly, supplying a burst of power to crank the engine. Reliable starts in extreme temperatures, from -40°F to 149°F. Just what drivers count on.

Ride with the leader

Maxwell is the world leader in ultracapacitor design, delivery and support. With our ESM, drivers get where they're going, when they need to get there—without being blindsided by old or run down batteries.

ESM Design & Operation*

- Quick installation—replaces one Group 31 battery
- Recharges fully in less than 15 minutes (initial charge is 30 minutes or less)
- Industry standard BCI Group 31 form factor
- Provides 1800 CCA and 900 CCA**

Reliable Performance*

- Reduces or eliminates costly jump-starts
- Reliable cranks from -40°F to 149°F (-40°C to 65°C)
- Shock & vibration resistant
- Built-in overcharge protection
- Easily cranks diesel engines up to 16 L
- Limited 4-year warranty
- Assembled in the USA

Fleet & Operator Benefits*

- Reliable cranks—regardless of temperature
- Improve delivery times and schedules due to reduction/elimination of jump-starts
- No lead. No acid.
- Lightweight - only 16-21 lbs
- Low total cost of ownership
- Enables anti-idle compliance

Conditions are unpredictable. Starting your truck shouldn't be.

Maxwell's Engine Start Module: the perfect companion for temperature extremes. To learn more about our ESM and the remarkable technology it's built on, visit maxwell.com/esm.

Maxwell Technologies. Start Strong.

*Lead-acid batteries still power ECM/ECU. Results may vary. Additional terms and conditions, including the limited warranty, apply at the time of purchase. See the warranty details and enclosed information for applicable operating and use requirements.

**Ultracapacitor CCA is calculated differently than a battery using a different interval. Consult FOOTNOTES section of product datasheet for details.