

SkelStart
ENGINE START MODULE
12V & 24V

The most powerful module for starting large diesel engines

**Eliminate down time
and forget about
battery problems -**

The SkelStart Engine
Start Module will crank
your engine reliably
even at -40 °C/F



skeleton+

What is SkelStart?

The SkelStart Engine Start Module is a supercapacitor engine start module. It will start your engine anywhere, every time, and will crank any large diesel engine reliably, time after time.

Supercapacitors are an engine storage technology similar to batteries, but their strengths are very high power, 15+ year lifetime, and excellent reliability, even in extreme temperatures.



Why SkelStart?

Your batteries have to power the lights, the A/C, the lift gate, and all electronics in your vehicle. All this on top of having to crank the engine, which requires high current and decreases the lifetime of your batteries. Supercapacitors are designed to provide high current and are ideal for cranking large diesel engines. You'll never need to worry about your engine not starting again.



High power
60X the power
of batteries



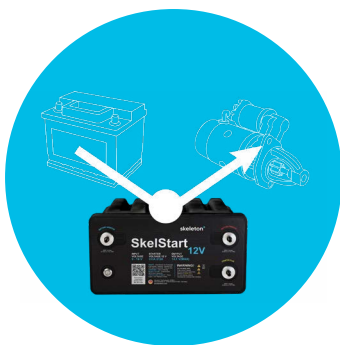
No downtime
reliable engine starting
even with dead batteries



Long lifetime
1M+ lifecycles, no
maintenance needed



**Works even at
-40 °C/F**
with full efficiency



Easy and safe installation

The SkelStart unit goes between your battery and starter, making it the sole starting power for your engine. The batteries will keep powering hotel loads (lights, A/C, and so on). Depending on your needs, the SkelStart can either replace one of your batteries, or be installed alongside your existing batteries.

Reliable engine starting

Supercapacitors are highly resistant to harsh temperatures and operate at almost full efficiency even at $-40^{\circ}\text{C}/\text{F}$.

The SkelStart 12V only needs 9V to recharge, so it works even if your batteries are dead.

Longer battery lifespan

Increases battery lifetime up to 2X.

Starting power doesn't come directly from the batteries anymore, protecting them from frequent, high peaks of current.

One-time investment

Supercapacitors have a lifetime of 1+ million charge-discharge cycles, meaning the SkelStart will last the entire lifetime of your vehicle.

No maintenance required, no upgrades needed.

Improved fuel economy

No need to idle your engine to keep the battery charged.

Eliminating idling can reduce fuel consumption by 400 liters a year (on average), saving money and reducing CO₂ and NO_x emissions.

Real Life Use Cases

"Our truck is often on stand-by mode for a long time. Starting the engine has always been an issue. We liked the idea that the SkelStart holds full charge for 3 months and even if the Skelstart energy is used, it needs only 9V and couple of minutes to be fully charged from "dead" batteries. This allows us to start the engine regardless of the status of the batteries, to be more operational and to not worry about jump-start capability if we are on the road"

- Janno Oras, Kalev AS



"I used to idle my truck almost every day while I was cooking or watching TV - just to avoid surprises the next morning. Having SkelStart is like having an ace in my back pocket - whatever the weather, or the status of my batteries, I can still start the truck. I can also feel the engine cranking much faster now. I got SkelStart installed on a 2011 Scania R620 that I plan to replace in few years - thankfully SkelStart has a long lifetime, so I can just install it to my next truck."

- Rainer, Lundens Frakt. Göteborg, Sweden



	SkelStart 12V	SkelStart 24V	Unit
Cold Cranking Amps (CCA)*	2130	1230	A
Maximum Peak Current (1 sec current)**	3829	2547	A
Peak Power*	44.7	76.1	kW
Charged full voltage***	13.5	27	V
Energy	37	37	Wh
Rated Capacitance	1360	340	F
Individual Cell Capacitance	3400	3400	F
Charging current	20 (max)	20 (max)	A
Continuous input voltage range	9-16	18-32	V
Continuous input voltage range with specified charge time	11.5-16	23-32	V
Recharge time (from 0 V)***	20	10	min
Operating temperature	-40 to +65 -40 to +149	-40 to +65 -40 to +149	Deg °C Deg °F
Storage temperature	-40 to +50 -40 to +122	-40 to +50 -40 to +122	Deg °C Deg °F
Standby current draw	<10	<10	mA
Dimensions	328 L x 171 W x 241 H 12.91 x 6.73 W x 9.49 H	328 L x 171 W x 241 H 12.91 x 6.73 W x 9.49 H	mm Inch
Weight	8.5 18.74	8.5 18.74	kg lbs

* Based on 1s ESR ** The stated maximum peak current should not be exceeded during use. If the limit is to be exceeded by the customer, Skeleton must be consulted beforehand and give approval for the exceeded power load. *** 90% State of Charge