LEAB
mobile energy

ENERGY UNIT

Innovative and compact power supply system for uninterruptible cooling in temperature-controlled transport

RAPID INSTALLATION TIME

Thanks to the ready-to-plug-in system, the Energy Unit can be installed in just one hour on average.

LOW WEIGHT

Weighs a maximum of 55 kilograms, depending on the capacity selected.

HIGH CYCLE STABILITY

Over 3,000 charging cycles at a discharge depth of 80 %.

Fresh food logistics experts, medicine transporters and frozen food suppliers know the problem: every time the engine stops the active cooling system comes to a partial or complete standstill, and frequent opening of the cargo area doors has a visible effect on the temperature recorder. Trends toward alternative drive types are significantly exacerbating these future challenges.

At the same time, the requirements and expectations for logistics and the supply chain of temperature-controlled transport have been changing continuously for years.

Thanks to regular exchanges with users and focussed development work, we have now designed a new system that easily meets these requirements in the long term – the Energy Unit.

THREE VARIANTS

Mobile power supply made to measure

You can choose between three variants of the Energy Unit: The Energy Unit Split together with its components offers maximum flexibility for delivery vans. The Energy Unit Box, on the other hand, is tailored to outdoor use in box body vehicles. With Energy Unit Customized, we can jointly develop a system from scratch.

ENERGY UNIT SPLIT

The flexible, compact and lightweight complete system available as a kit in three capacities

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ENERGY UNIT BOX

The robust, weatherproof, all-in-one solution for outdoor use in box body vehicles

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ENERGY UNIT CUSTOMIZED

Our individually developed solution for your requirements

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“We are particularly proud of the battery pack – the heart of the complete system: It offers enormous capacity and withstands the highest loads.”

The development team

HOUSING

Lightweight, corrosion-resistant, highly stable: The aluminium housing protects the battery modules and, thanks to its extremely flat design, provides completely new installation options.

DIMENSIONS

Even with its enormous capacity of 210 Ah, just 75 cm long – and not even 10 cm high.

INSTALLATION

Ready to plug in and can be installed without the need for a qualified electrician.

INDEPENDENCE

Self-sufficient system that reliably supplies the additional consumers with energy – regardless of the type of drive.

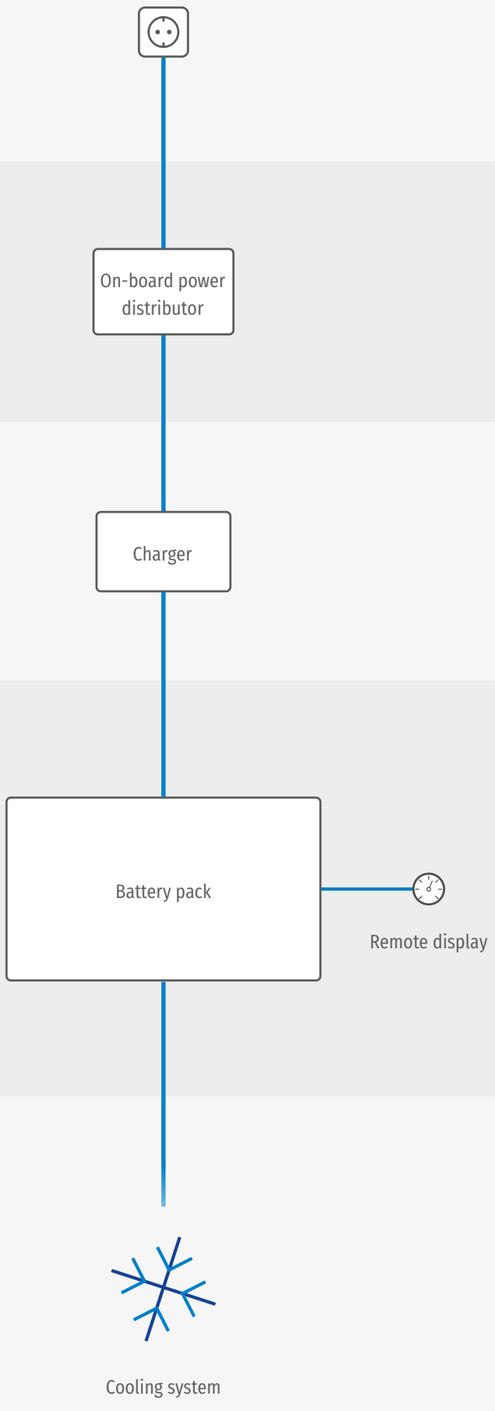
INPUT

DISTRIBUTE

CHARGE

STORE

SUPPLY



ENERGY UNIT SPLIT // COMPLETE SYSTEM AS A KIT


CHARGING // RBC 24105

COMPLETE SYSTEM WITH INDIVIDUAL COMPONENTS AS A KIT

Variable and proven

For years, we have been offering a wide-ranging and precisely coordinated product portfolio. This enables us to easily meet the requirements of different vehicle models and to secure the specifically required energy supply for different refrigerated vehicles.

ALL-ROUND SUPPLY

For the Energy Unit Split, the MelfBox is used for power supply. An on-board power distributor such as the PCM4 forwards the current to a battery charger. Here we rely on our microprocessor-controlled RBC 24105, which is ideal for charging the heart of our system – our newly developed battery pack: It reliably supplies your cooling system with energy.

Outdoor power supply	LEAB MelfBox
Connection cable	Two-pin earthed plug 5 m, 230 VAC
On-board power distributor	PCM4 incl. fuse protection
Charger	RBC 24105, IP54, 3 kW
Remote display	enGage II, model 3100R
Connection kit	Plug-in wiring kit
Option 1: Inverter	Output voltage 230 VAC
Option 2: DC-DC converter	Output voltage 12 VDC
Option 3: DC-DC booster	Recharging the battery pack while travelling

SUPPLY // MELFBOX

ENERGY UNIT SPLIT // BATTERY PACK

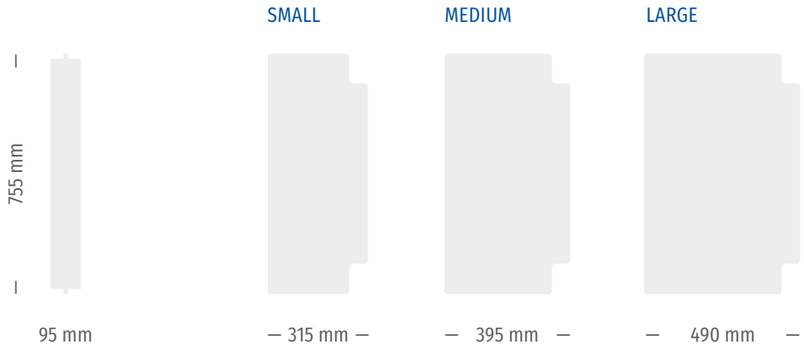
ENERGY UNIT SPLIT

The flexible, compact and lightweight complete system available as a kit in three capacities

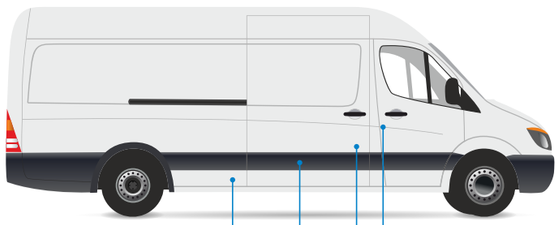
ENERGY UNIT SPLIT // DETAILS

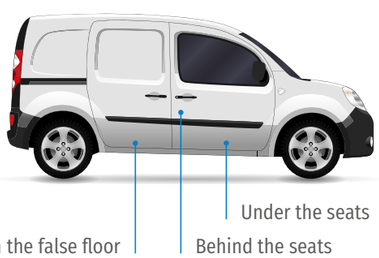
	SMALL	MEDIUM	LARGE
Capacity	105 Ah	150 Ah	210 Ah
Amount of energy	2,720 Wh	3,885 Wh	5,439 Wh
Height	95 mm	95 mm	95 mm
Width	755 mm	755 mm	755 mm
Depth	315 mm	395 mm	490 mm
Battery pack weight	20 kg	27 kg	35.5 kg
Overall system weight	35 kg	40 kg	49 kg
Charge time (with RBC 24105)	1 h	1.5 h	2 h
Cycle stability (80 % DoD)	≥ 3,000	≥ 3,000	≥ 3,000
Output voltage	24 VDC	24 VDC	24 VDC

DIMENSIONS



POSSIBLE PLACEMENTS IN THE VEHICLE (EXAMPLES)





IMPRESSIVE EFFICIENCY

Plug and play in the smallest space

IDEAL HOUSING HEIGHT

Thanks to its low height of just 9.5 centimetres, the battery pack of the Energy Unit Split can be installed in various places in the driver's cab. Behind the seat back, under the seat, between the seats, directly on the partition wall: wherever it is mounted, there is no need to interfere with the body of the vehicle.

In addition, all other system components can be installed independently of each other in the vehicle to meet individual space requirements.

PLUG AND PLAY

All the system's devices and cables are pre-assembled. This allows for an extremely short installation time – especially compared to a conventional system.

Installation in the driver's cab of a Sprinter.

LAST MILE DELIVERY

Cooling without Interruption

The system can be used in refrigerated vehicles to provide enough energy for a whole working day – without having to recharge.

At night, the integrated charger provides sufficient replenishment, and at the same time the cargo area can be pre-fitted – all via one connection. For vehicles with combustion engines, additional recharging is carried out while driving by the optional charge booster. Quick intermediate charging via a socket is also possible.

Naturally, generator operation can still be used for the cooling system. As soon as the vehicle engine stops turning, an automatic switchover to mains operation can take place, depending on the cooling system used.

ENERGY UNIT SPLIT // LAST MILE DELIVERY

HIGHLIGHTS

// Buffering of downtimes
// No interruption of the cold chain
// No intervention in the vehicle body necessary
// Silent operation
// Fuel savings
// No emissions on site

IN DETAIL

ENVIRONMENT AND SOCIETY

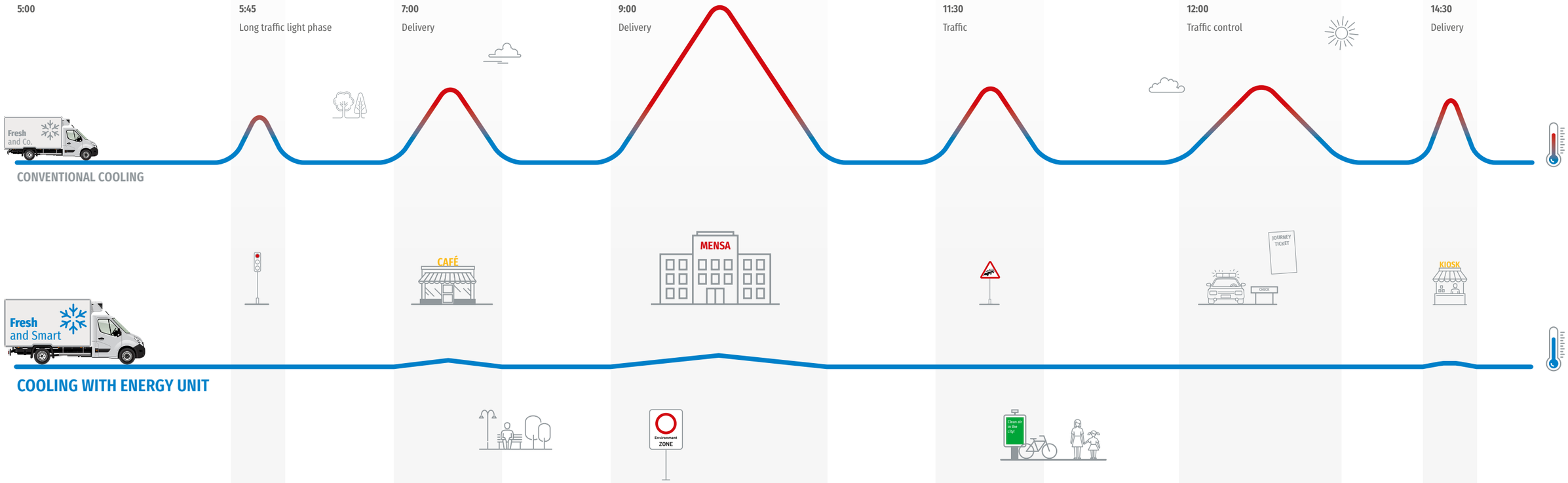
// Efficient last mile delivery
// CO_2 savings
// No noise / no emissions

ECONOMIC EFFICIENCY

// Fuel savings
// Installation time < 1 h

IDEAL FOR ELECTRIC MOBILITY

// Low weight
// No generator required
// No access to traction battery
// Optimised for tight spaces
// No loss of range with electric vehicles



POWERFUL STORAGE TECHNOLOGY

Technology meets safety

PROVEN RELIABILITY

The battery pack is based on particularly high-energy lithium cells. This storage technology combines reliability and modernity, as it has proven itself for years in our product development and on the market. At the same time it is constantly being further developed and therefore remains future-proof.

MULTIPLE PROTECTION LEVELS

Thanks to redundant monitoring on each individual module within the battery as well as the overriding battery management system (BMS), it offers an extremely high level of functional safety.

In addition, the battery pack has an highly robust housing. At the same time, thanks to the built-in cells, we have been able to achieve extraordinary savings in terms of weight and dimensions.

Misuse is also prevented: Short circuits, reverse polarity and deep discharge are technically prevented. Last but not least, all relevant components communicate with each other via a CAN bus.

// Proven battery management system
// Short circuits, polarity reversal and deep discharge are excluded
// Permanent monitoring of all components by the battery management system

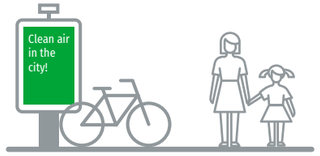
SPLIT, BOX AND CUSTOMIZED IN TEMPERATURE-CONTROLLED TRANSPORT

Up to any challenge

MEET LEGAL REQUIREMENTS

GDP, HACCP or WLTP as well as inner-city driving bans, low payload weights, automatic start-stop systems or temperature detection: The legal requirements for temperature-controlled transport are increasing all the time.

Thanks to the Energy Unit, temperature fluctuations are avoided and regulations are consistently complied with – on the last mile and in intercity transport.



SUSTAINABLE FOR THE ENVIRONMENT AND SOCIETY

// Fuel savings
// No emissions
// Buffering of downtimes

NO LOSS FROM INSTALLATION WORK

Caddy, Citan, Crafter, Daily, Master, NV200e, Sprinter or Vito: The Energy Unit can be installed in the cabin or under the luggage compartment in no time at all – no intervention in the vehicle's architecture is necessary.

MAINTAINING A CONSTANT COLD CHAIN

During loading and unloading, at traffic lights, during breaks or checks: Commercial systems for temperature control of the cold room involve an interruption of the cold chain in many everyday delivery situations. The Energy Unit, on the other hand, makes it possible to buffer standstill times – not only for electric vehicles, but also when operating units with generator operation.

PREPARED FOR FLEET CHANGES

Battery-electric, hydrogen or fossil fuel-powered vehicles: The modular energy supply of the cooling system by the Energy Unit, which is independent of the vehicle's drive type, adapts to your mobile future.

This means you don't have to worry about the energy supply of your vehicles in the event of future changes to your fleet, as you can remove and reinstall the Energy Unit quickly and easily.

“The goal of developing an all-in-one solution with this capacity was very ambitious – and we are more than satisfied with the result.”

The development team

HOUSING

Compact, robust and even heated: The plastic housing is waterproof and the lithium battery is equipped with PTC heating elements to counteract low temperatures.

DIMENSIONS

5,439 Wh packed into 56 cm x 36 cm x 46.5 cm – the definition of compactness.

INSTALLATION

The compact box is installed in less than an hour.

INDEPENDENCE

Self-sufficient system that reliably supplies the additional consumers with energy – regardless of the type of drive.

ENERGY UNIT BOX

The robust, weatherproof, all-in-one solution for outdoor use in box body vehicles

Unlike the Energy Unit Split, the Energy Unit Box combines not only the battery, but also all components belonging to the overall system (excluding options) in one housing.

This enables us to optimally meet the special ratio of available space and energy requirements of box body vehicles.

The MelfBox for power supply (see page 7) and the remote display are also included in the scope of delivery, ready to plug in for individual placement on the vehicle.

ENERGY UNIT BOX // DETAILS

Capacity	210 Ah
Amount of energy	5,439 Wh
Cell chemistry	NCA
Height	465 mm
Width	560 mm
Depth	360 mm
Charge time (with RBC 24105)	2 h
Cycle stability (80 % DoD)	>= 3,000
Output voltage	24 VDC
Overall system weight	55 kg

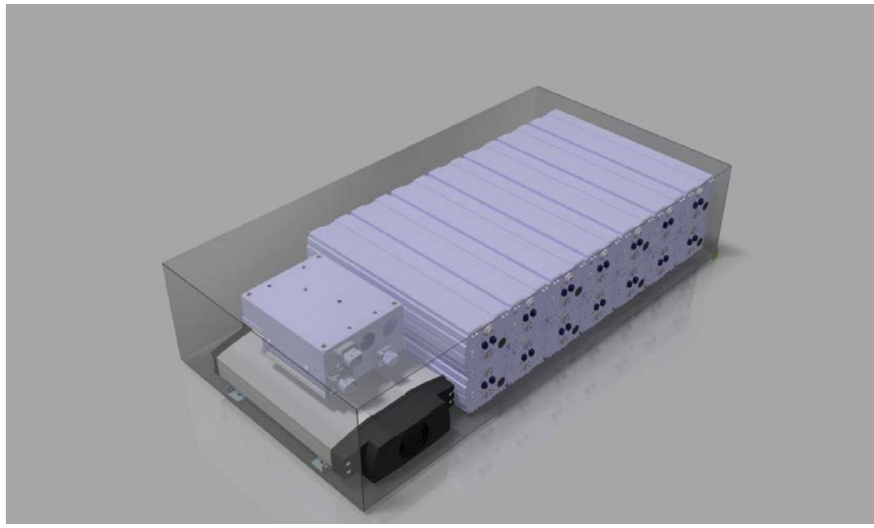
Option 1: Inverter	Output voltage 230 VAC
Option 2: DC-DC converter	Output voltage 12 VDC
Option 3: DC-DC booster	Recharging the battery pack while travelling

ENERGY UNIT CUSTOMIZED

Our individually developed solution for your requirements

Available installation space, planned service life, permissible weight, special temperature range: For some projects, the requirements are so specific that a completely customised energy supply is necessary.

We can also meet these requirements with the Energy Unit. We meet together to discuss your requirements and wishes as well as all possible components. We then work out a custom-fit solution.



LEAB
mobile energy

We make energy mobile.

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