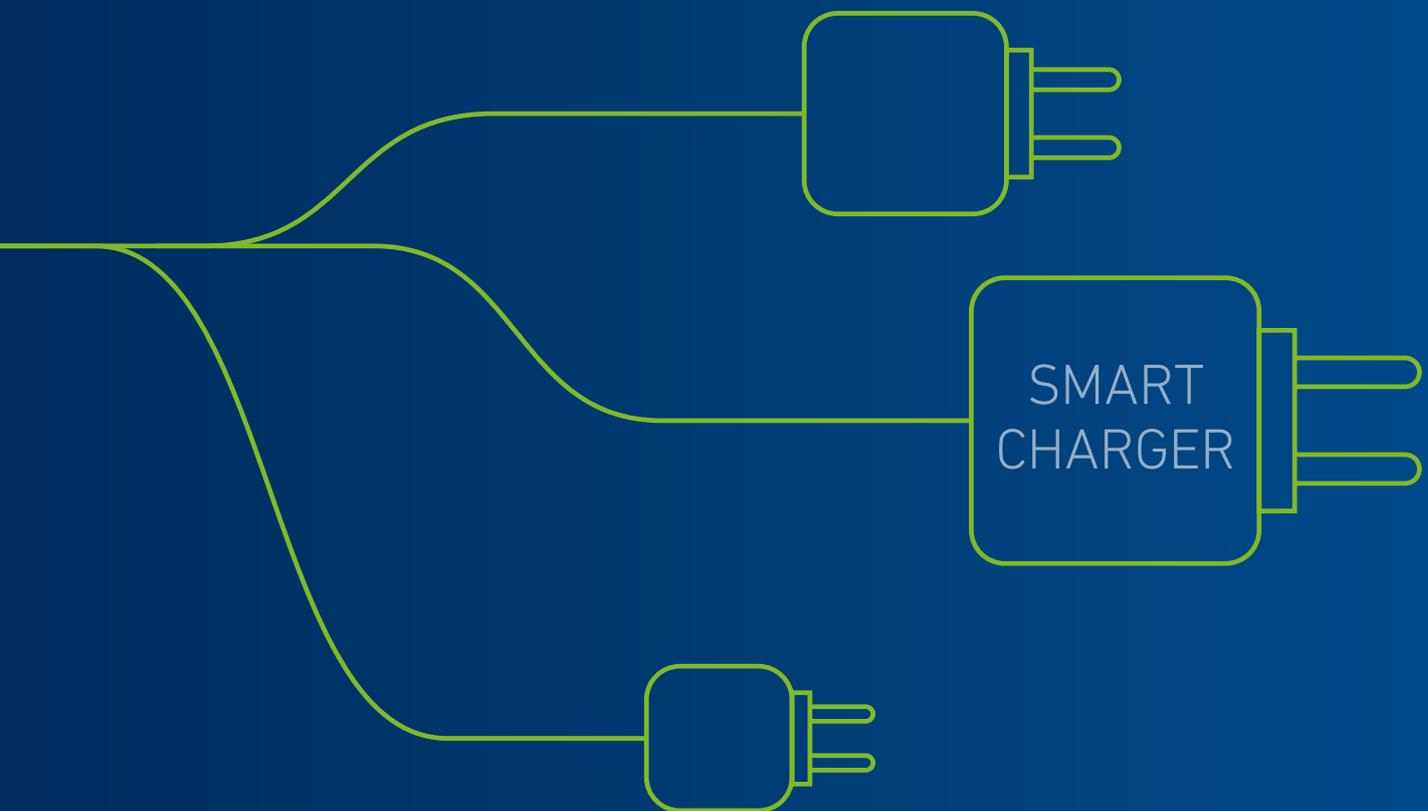


Batteries

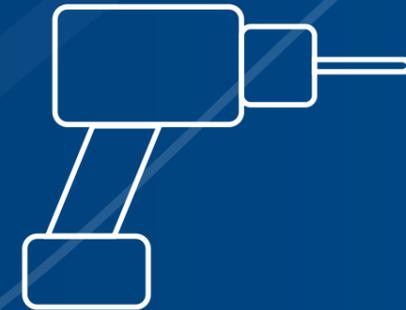
have never been
so predictable!



... no problem

with the
SMART CHARGERs
of NOVUM

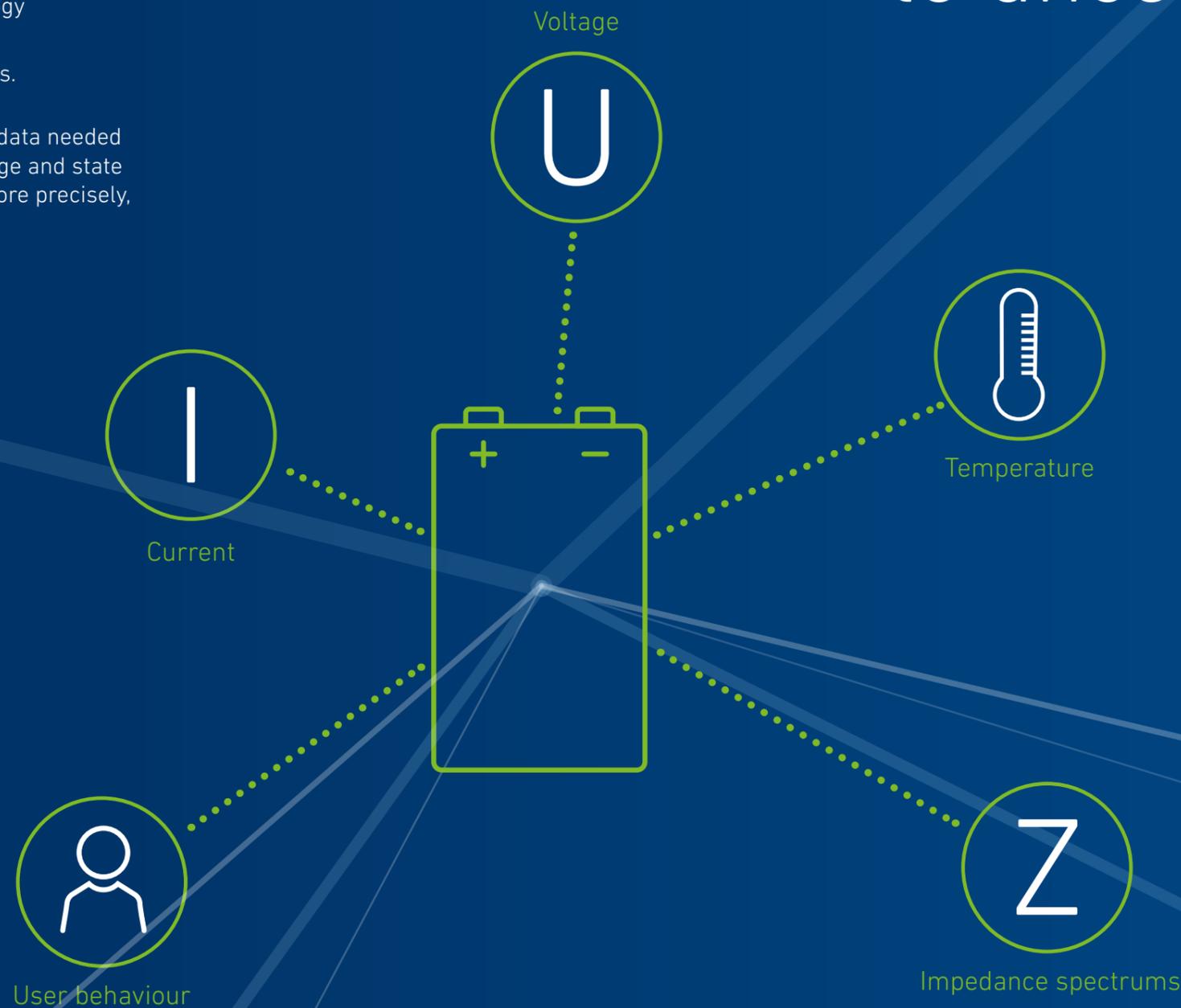
Lower battery costs,
more range,
longer battery use,
point of wear projection,
digital maintenance management,
new sales arguments ...



Say goodbye to uncertainty!

Thanks to a patented technology
NOVUM SMART CHARGERS
are mobile battery laboratories.

They automatically gather all data needed
to determine the state of charge and state
of health of batteries much more precisely,
than ever before.



An intelligent algorithm calculates point of wear
projections and makes them available locally or
remotely via a cloud connection.

Unexpected battery failures or changing the
battery before time thus belong to the past.

Added values

for manufacturers
and fleet operators
of battery-powered devices
and vehicles:



2 YEARS
3 MONTHS
3 WEEKS

Valid detection of the state of health

- 30% longer battery use duration more than with conventional cycle counting
- wear status of batteries can be displayed (e.g. as wear bars)
- extension of battery life time through age-adapted charging possible

Advance wear warnings

- failure warnings 4 weeks before battery wear
- new batteries can already be sent to the customer before the old ones fail

Up to 20% more precise state of charge

- smaller state of charge buffer
- smaller batteries for the same reach or higher reach at the same battery size

Great value ...

... small costs

Simply change your charger supplier and, instead of simple chargers, buy SMART CHARGERS from NOVUM in the future for the same price*. Then book your desired battery monitoring package.

Battery monitoring Basic packages

S

- Wear monitoring (SoH determination)
- local display on the charger

starting at 0,5 ct./month**

M

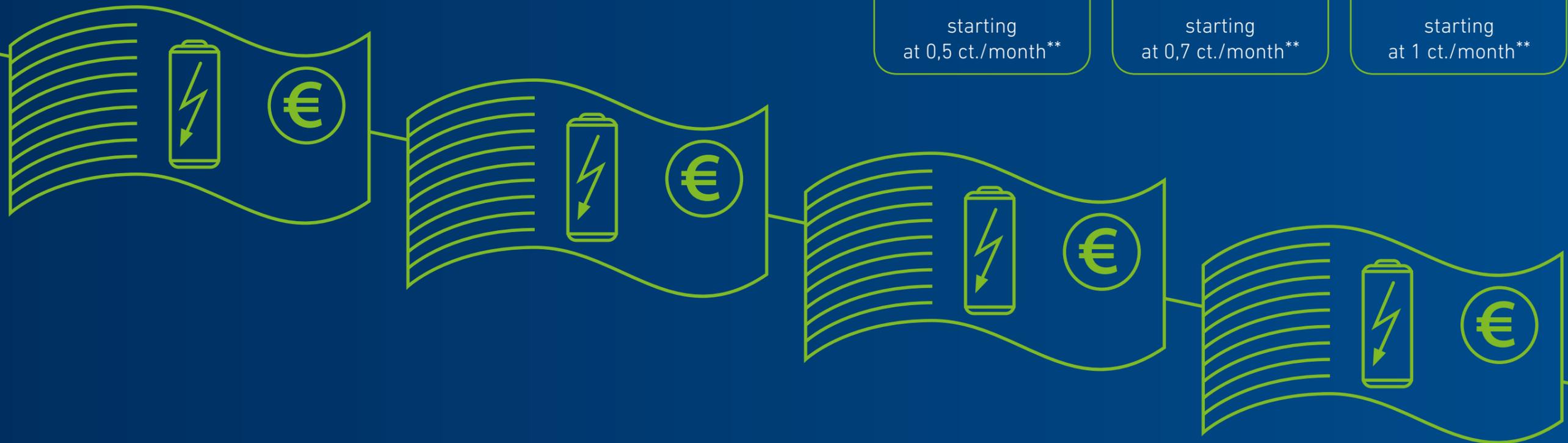
- Battery monitoring package S + state of charge determination (SoC determination)

starting at 0,7 ct./month**

L

- Battery monitoring package M + Sending SoH information

starting at 1 ct./month**



*A relevant supplier invoice is sufficient as proof.

** The indicated licence fee is per watt and will be extrapolated to the charger's power class. Example: This makes a monthly licence fee of 50 ct for a 100 W charger in the basic package S.

①

TEST NOVUM battery monitoring

- Schedule an appointment with NOVUM
- Select desired battery monitoring for a battery type
- First demonstration of the function

②

TRAIN NOVUM battery monitoring

- The algorithm will be trained for the desired battery type based on test measurements
- The specifications of the NOVUM SMART CHARGER are adapted to the battery type
- Desired connectivity is created

③

APPLY NOVUM battery monitoring

- Your SMART CHARGERs with integrated battery monitoring are ready to use

Why is the algorithm trained?

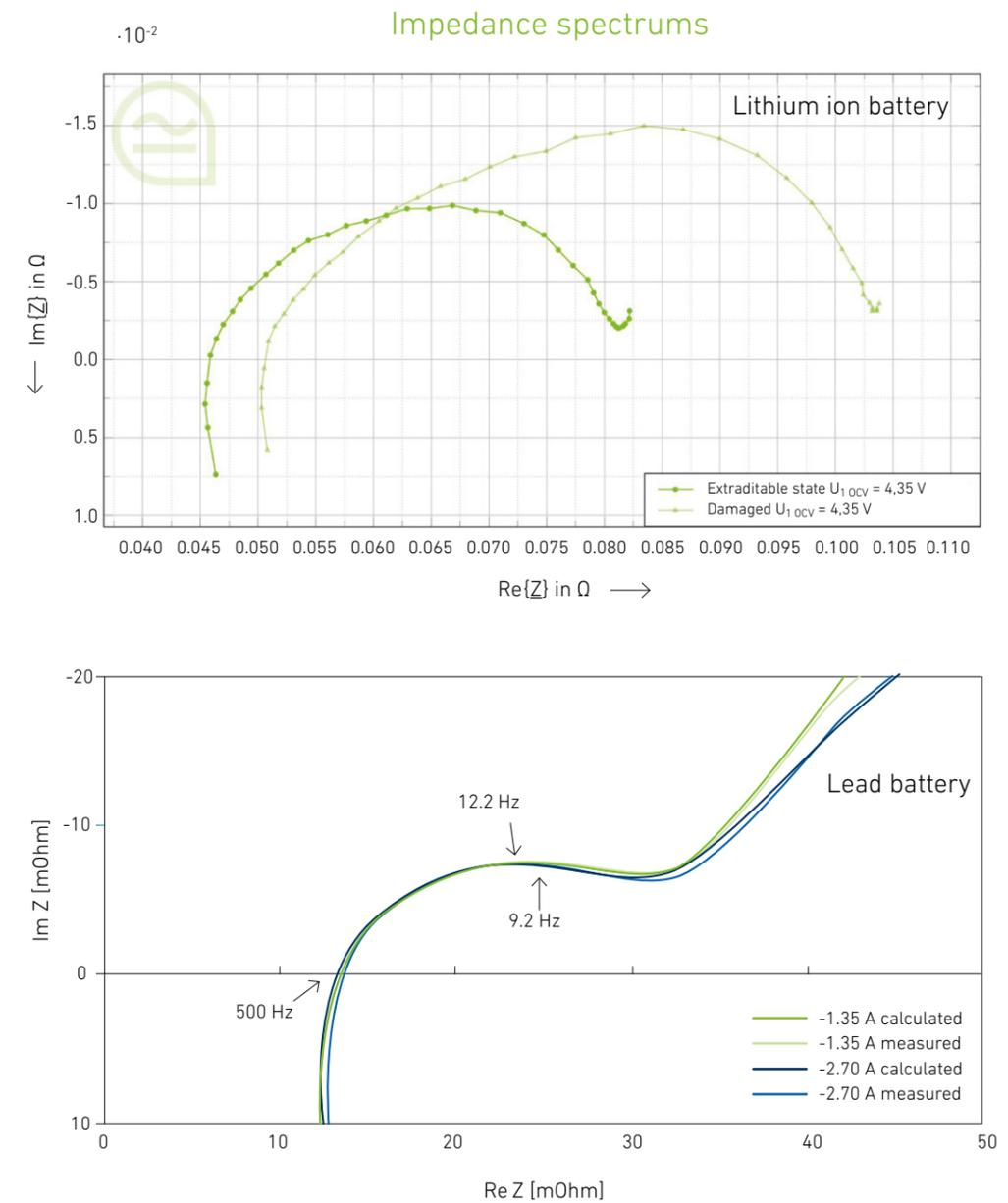
NOVUM primarily works with the electrochemical impedance spectroscopy method. Here, a defined current is impressed on a battery over a certain frequency spectrum and the voltage response is recorded.

For each battery type, a characteristic curve that is informative of the battery chemistry thus arises with the appropriate interpretation.

Every change in battery chemistry (e.g. through wear or a change in the state of charge) becomes visible in the impedance spectrum – however, at a different point for each battery.

The training phase enables the algorithm to identify the right indicator points for the state of charge (SoC) and the state of health (SoH).

These are now additionally related to other relevant measured variables (current, voltage, temperature and, if necessary, user behaviour) to be able to later create workable SoC and SoH measurements as well as wear projections.



FAQ's

Can one also use NOVUM SMART CHARGERS if the state of charge is already determined by BMS?

Yes. The SMART CHARGERS can correct the state of charge measurement of BMS (e.g. by the battery wear values). A possibility of communicating with the BMS is required for that. These can be created during the training phase.

Can one use a personal cloud instead of the NOVUM cloud?

Yes. A suitable cloud connection is no problem and can be created during the training phase

Is it also possible to book battery monitoring without purchasing SMART CHARGERS from NOVUM?

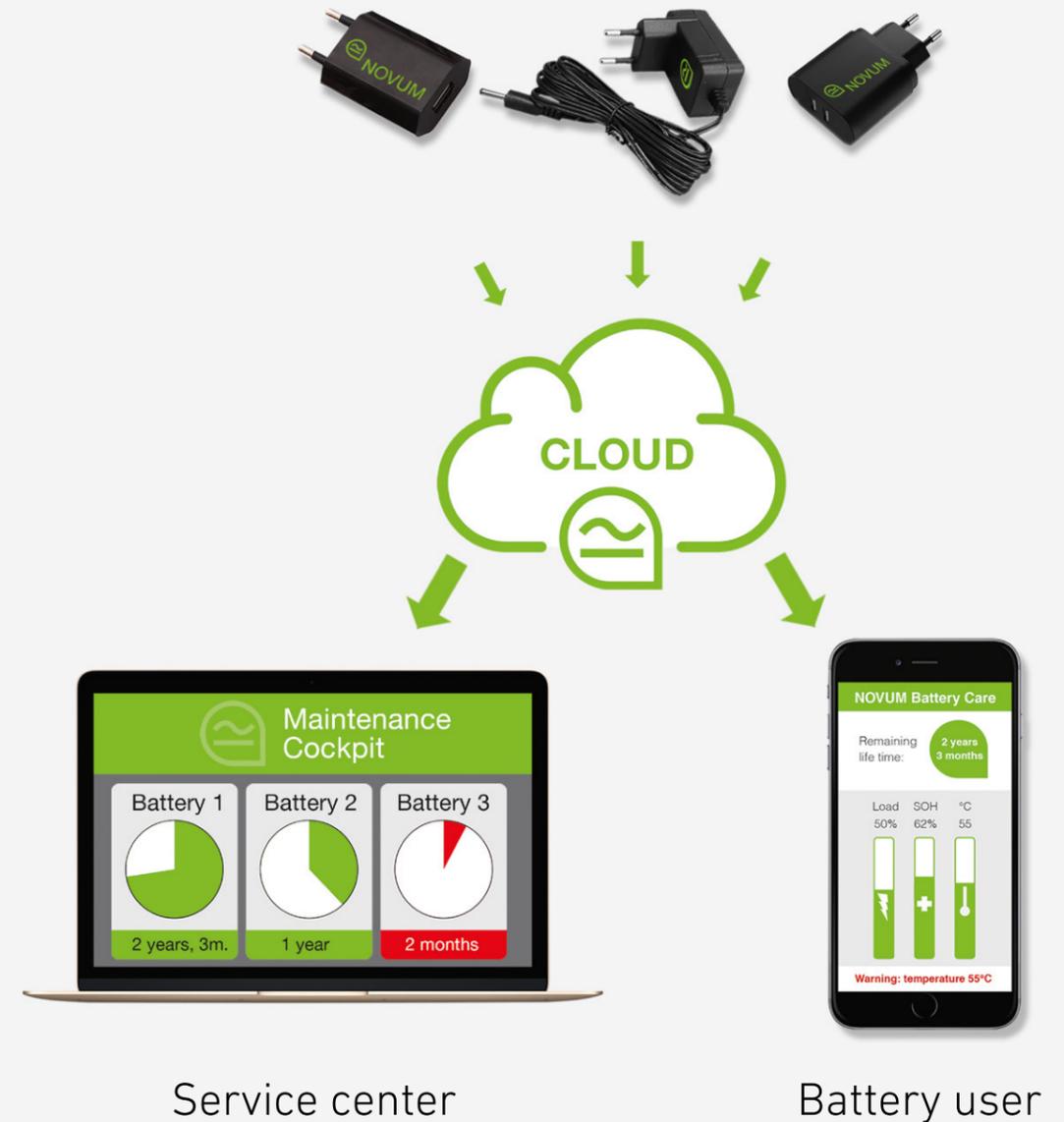
Yes. Although battery monitoring only works with the patented topology of NOVUM SMART CHARGERS, they can be produced by the client or another supplier if desired and upon payment of a licence fee.

Can NOVUM battery monitoring also be used if no charger is needed at all?

Yes. NOVUM can integrate battery monitoring into every type of power electronics built based on the specifications of the NOVUM topology – thus in inverters, battery management systems or drives too. A stand-alone impedance spectroscopy solution is also possible in particular cases.

Please just contact us:

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