

# EBG *compleo*

ASK SAM!

**SIMPLE, SAFE AND COMPLIANT  
WITH CALIBRATION REGULATIONS.**



# ASK SAM!

## **SIMPLE, SAFE AND COMPLIANT WITH CALIBRATION REGULATIONS.**

In combination with a calibrated meter, SAM meets the requirements of the calibration law for charging an electric vehicle at a charging station. SAM is a storage and display module which saves the initial and final meter reading of the charging processes via a sufficiently long period of time and displays it on request. This instrument offers benefits for several market participants:

### User:

- Billing of kWh and charging time in accordance with the calibration law
- SAM is visible to the user from the outside at the charging point and enables the meter values to be checked on site and on the invoice.
- Verification of meter values by the user without additional devices (e. g. computer, internet access, BKI query, etc.) possible
- The displayed values are binding in the event of a dispute

### Charge Point Operator:

- Significant reduction of complexity in the system compared to alternative solutions ("keep it simple")
- SAM is a cross-market solution: from the very beginning it is roaming-capable and offers independence from CPO, MSP, Backend
- No additional technical requirements for the CPO backend system and downstream data transfer (e. g. communication, storage, transparency software, etc.)
- OCCP 1.5ff can be used unchanged, no need for transmission of signed meter values
- All billing-relevant data is transferred to the backend system via OCCP and is available to all market participants
- Onetime procurement costs - no running/ongoing expense

### Calibration authority:

- Simple verification by calibration authorities possible

**SAM is available in the second half of 2018 and many EBG compleo charging stations can be retrofitted with it.**



# WHAT ABOUT SAM?

## ONE SOLUTION - MANY ADVANTAGES.

With the storage and display module (SAM) EBG compleo offers an instrument for billing in line with calibration regulations for charging stations. It provides a transparent, legally compliant billing option for all market participants.

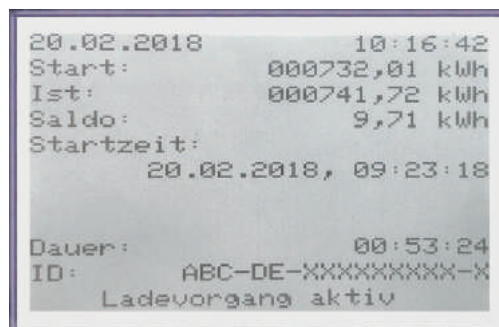
The concept is that each charging point is equipped with a storage and display module (SAM). The device is designed in such a way that the amount of energy once consumed is directly saved after a charging session and can subsequently be displayed locally at that charging station. For this purpose SAM has a display and an externally operated interface. The customer has the possibility to check the charging time and the meter readings of the charged amount of energy at the charging station at any time by means of SAM for correctness and authenticity.

In the case of a publicly accessible charging station, the electric vehicle driver or the vehicle itself has to be identified first. The measuring process is started and charging with electrical energy takes place. During the charging process, the user can keep an eye on the charging time and the amount of energy drawn. After the vehicle has been recharged, an overview of the measurement results is displayed.

SAM can be used in combination with an AC meter for AC charging stations as well as with a calibrated DC meter (as soon as available on the market) for DC charging stations. By using SAM, the technical requirements of the calibration regulations are fulfilled by the charging station alone. No further technical requirements of other system components or market participants (CPO, backend, roaming, etc.) are necessary.

There is no need for signed meter values or any transparency software, which must meet the requirements of the calibration law. This means that the customer does not have to use additional devices (e. g. a PC) to check meter values. SAM also does not require the publication of an additional storage for billing data in the backend that is compliant with the calibration law. Also the publication of a public key, which must be updated, is not necessary.

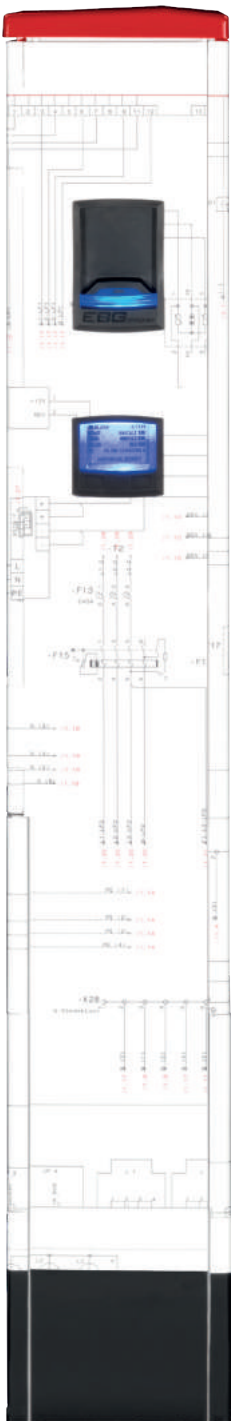
SAM has a very high potential to "solve a global problem locally". It is independent of the manufacturer and can also be retrofitted in many EBG compleo charging stations.



20.02.2018 10:16:42  
Start: 000732,01 kWh  
Ist: 000741,72 kWh  
Saldo: 9,71 kWh  
Startzeit: 20.02.2018, 09:23:18  
Dauer: 00:53:24  
ID: ABC-DE-XXXXXXXXXX-X  
Ladevorgang aktiv

# CALIBRATION REGULATIONS FOR CONSUMER PROTECTION.

The calibration law serves for consumer protection: it guarantees the customer the reliability of a measuring instrument. The calibration law helps the citizen to correctly assess the commendableness of a product and ensures fair competition in trade.



The calibration law is the legal basis for measuring reliability. Measuring instruments are considered calibrated by checking that they comply with correct measurement results. Measuring instruments must be suitable for their purpose, reliable and durable. It must be possible to clearly display measurement results and process them safely against falsification. They must also be verifiable.

In Germany the calibration authorities of the federal states are the national measuring service. They ensure that the requirements of the measurement and verification ordinance (MessEV) are complied with.

For a transparent and fair market situation at charging stations, exact billing according to kilowatt hours and, if necessary, the billing according to charging time is required. Alternative solutions are known: For example, it is possible to give the electricity for free or to offer flat rates. However, this transaction cannot be described as a fair settlement because it provides either for the user or for the electromobility provider financial disadvantages.

The clear objective therefore is to measure the electrical energy at AC and DC charging points and, if necessary, also the charging time in accordance with calibration regulations. When charging, the user must always be able to check how much electrical energy he has received and how long the charging time has been. A charging point requires, among other things, an electricity meter, that delivers accurate energy readings.

In addition, the permanent recording of the measurement results is particularly important, as users frequently change in the case of public and semi-public charging infrastructure. In this application, special requirements arise, because:

- the measurement cannot be repeated,
- the measuring instrument is in general intended to be used in the absence of one of the parties and
- a meter reading is changed by a next user.

SAM, which in the sense of MessEV is an additional device meets these requirements.

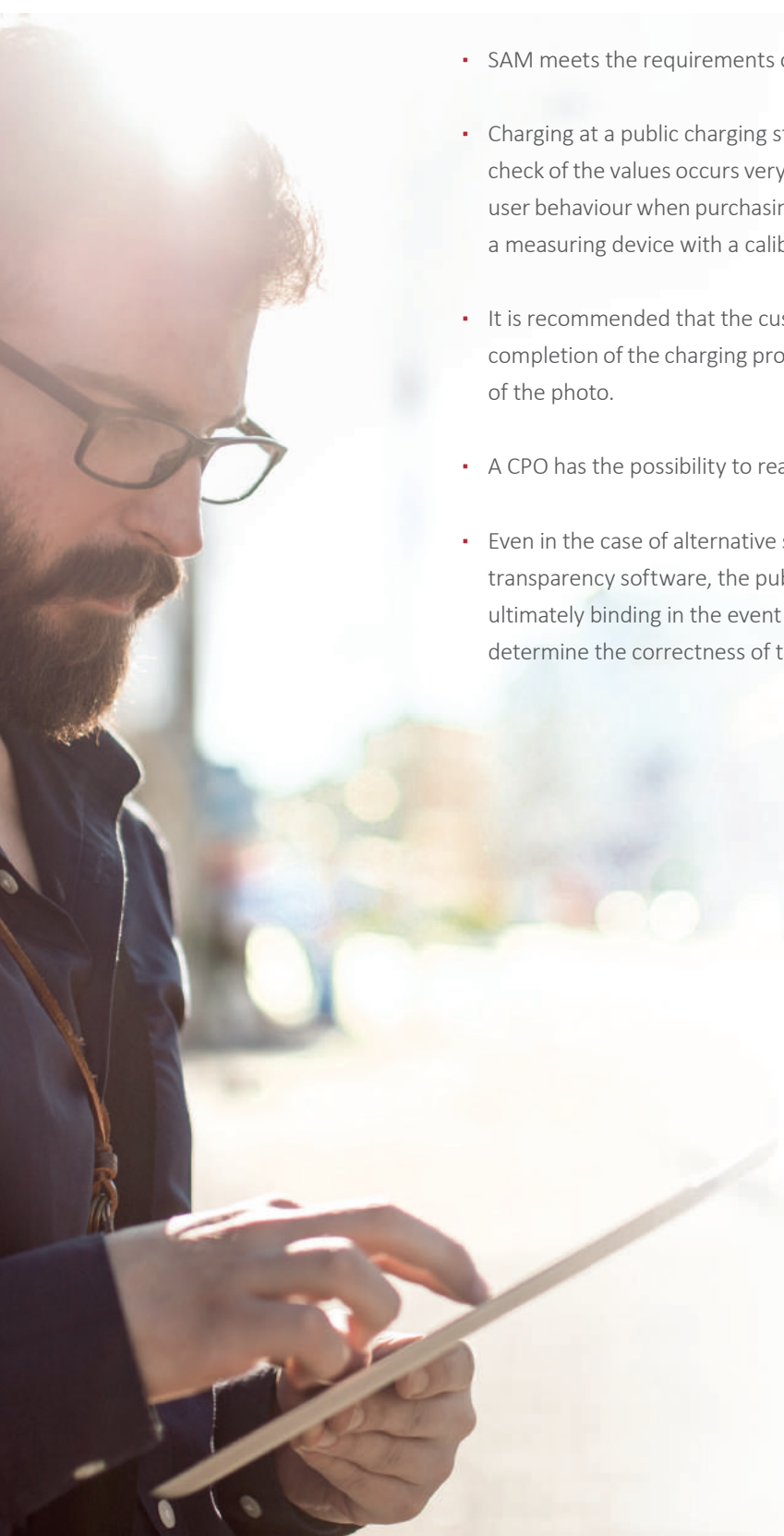
Measuring instruments and additional devices (current meters and SAM) require a conformity assessment. The manufacturer must at his own responsibility declare that its measuring instruments and additional devices meet the requirements of the MessEV. This includes, on the one-hand, a type-examination certificate for the technical design and, on the other hand, a certificate of conformity of the type in relation to the manufacturer's production process. Both certificates are issued by a conformity assessment body.

# ON-SITE CHECK

## WHY IT IS NO PROBLEM

SAM is primarily a solution with a "local concept". Driving to the charging station to recall the measured values of a completed charging process in exceptional cases is, however, a reasonable and suitable way to do so, because:

- SAM meets the requirements of the calibration law with its "local concept".
- Charging at a public charging station is a confidence-building measure. A repeated check of the values occurs very rarely in practice. This can be derived from the general user behaviour when purchasing other measured goods whose measurement requires a measuring device with a calibration stamp.
- It is recommended that the customer takes a photo of the measurement results after completion of the charging process. If necessary, he can check the invoice on the basis of the photo.
- A CPO has the possibility to read the SAM memory remotely.
- Even in the case of alternative solutions that offer a remote display in form of a transparency software, the public key attached to the charging point meter is ultimately binding in the event of a dispute. This also requires an on-site check to determine the correctness of the public key.



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