



Whitepaper

## Retrofitting MID Meters to Wallboxes

MID Meter or Compliant Wallbox? How the Charge Repay Service Bridges the Gap

### Learn more about

- » Billing Models: Flat-rate, manual, or automated
- » Comparison: MID meter vs. calibration law-compliant wallbox
- » Charge Repay Service: A smart billing solution
- » Decision Support: For various charging scenarios

## Introduction

**More and more companies are enabling employees to charge their company cars at home. However, without accurate measurement of electricity consumption, fair billing is not possible. Anyone charging a company car at home must correctly record the energy usage to settle costs with their employer.**

This raises an important question: Is a MID meter sufficient, or is a calibration law-compliant wallbox required for billing with the company?

This document explains the differences, evaluates whether retrofitting makes sense, and presents the Charge Repay Service as a smart alternative.



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# 1

## Overview of billing model



Before we dive into technical solutions, it's worth taking a look at the fundamental billing models, as they differ significantly in terms of effort, accuracy, and potential for automation. In practice, three models have become established:

### 1. Flat-Rate Billing

With flat-rate billing, the company pays a fixed monthly amount—regardless of the actual electricity consumption. The amount is regulated by law and depends on the vehicle type and the availability of charging options at the workplace.

**Advantages:**

- Simple and tax-advantaged
- No technical or administrative effort

**Disadvantages:**

- No transparency regarding actual usage
- Unclear whether charging takes place at home

### 2. Manual Billing Based on Consumption

In this model, electricity consumption at home is recorded via a separate meter. Employees regularly read the meter and submit the data for reimbursement.

**Advantages:**

- Consumption-based billing
- Low investment costs

**Disadvantages:**

- Time-consuming for employees and fleet managers
- Prone to errors due to manual data entry
- No separation between private and business use
- Not scalable for many users

### 3. Automated Billing

With automated billing, charging sessions are digitally recorded, processed, and transmitted directly to the company. This can be done via specialized hardware or software-based solutions.

**Advantages:**

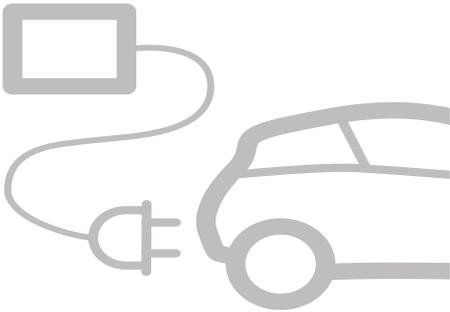
- Automatic, error-free data capture
- Separation of private/business usage possible
- Scalable and efficient for companies
- Audit-proof

**Disadvantages:**

- Technical setup required
- System compatibility necessary

# 2

## MID Meter vs. Legally compliant wallbox



## MID Meter

An MID meter is an electricity meter certified according to the European Measuring Instruments Directive (MID 2014/32/EU). It provides precise measurements and is sufficient for billing purposes in many EU countries — but not in Germany when multiple parties are involved.

Wallboxes with MID-compliant meters are suitable for billing between a single party, such as between an employer and an employee with a company car.

Some wallbox models come with an integrated MID-compliant meter. These devices can generally be

connected to a billing system (backend). However, there are legal limitations when used in Germany, especially if multiple vehicles or users are involved.

Alternatively, an MID meter can be installed as an external intermediate meter in the power line leading to the wallbox. In this case, however, automated billing is not possible: electricity consumption must be recorded manually by regularly reading and documenting the meter reading. This manual effort is a significant disadvantage—for both users and fleet management.



### Legally Compliant Wallbox

Legally compliant wallboxes meet additional requirements set by the German Measurement and Calibration Act (MessEG) and the Measurement and Calibration Ordinance (MessEV). These wallboxes are tamper-proof, store measurement data with cryptographic signatures, and enable transparent, legally secure billing—even with third parties.

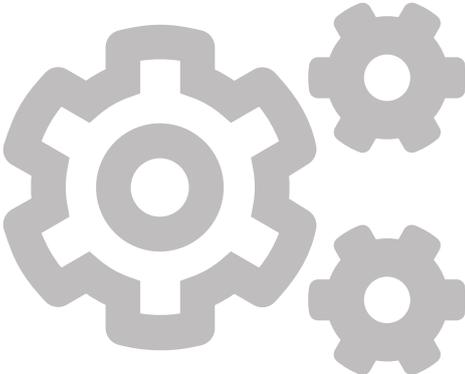
Legally compliant wallboxes fall under measuring device category 6.8 (measuring devices in the field

of e-mobility) and undergo a full conformity assessment procedure, including regular production audits. They are approved for billing with any number of third parties and meet the highest standards for transparency and protection against manipulation.

MID Meter vs. Legally compliant wallbox for charging company cars		
Feature	MID Meter	Legally Compliant Wallbox
Accuracy	High ( $\pm 1\%$ )*  **The MID meter’s accuracy is $\pm 1\%$ , regardless of the number of vehicles charged. However, legally secure billing is not possible with multiple users due to lack of traceability.	High ( $\pm 1\%$ )
Billing with Employer	Yes*  *Only if the meter exclusively measures electricity for the company car.	Yes
Billing with Third Parties	No	Yes
Tamper Protection	Limited	Yes
Cost	Low	High
Retrofitting	Easy	Not possible

# 3

## Retrofitting MID Meter



Retrofitting an MID meter is only advisable in specific cases. If a wallbox is neither legally compliant nor equipped with an MID meter, an MID meter can be installed as an intermediate meter in the power line leading to the wallbox to enable precise measurement of electricity consumption. For billing a company car with the employer, this setup is only legally secure if the wallbox retrofitted with the MID meter is used exclusively for charging the company car.

Installing an MID meter in the power line of a wallbox is technically possible regardless of the wallbox model. The meter is typically installed in the fuse box, behind the wallbox's circuit breaker. It is important that the power line supplies only one charging point. Wallboxes retrofitted with an MID meter do not support automated billing—the meter reading must be manually recorded and documented.

#### **Requirements:**

- Dedicated power circuit for the wallbox
- Sufficient space in the meter cabinet
- Installation by a certified electrician

#### **Costs:**

- MID meter: approx. €60–200
- Installation: €200–500 (depending on complexity)

## **Why MID Meters may not be enough**

Although MID meters offer a simple solution, they are often not legally secure in practice:

- The meter reading is often not visible
- If another vehicle is charged, the billing becomes invalid
- In many households, other individuals also use the wallbox
- Manual reading is error-prone and involves significant effort



# 4

## What is allowed in the home environment?

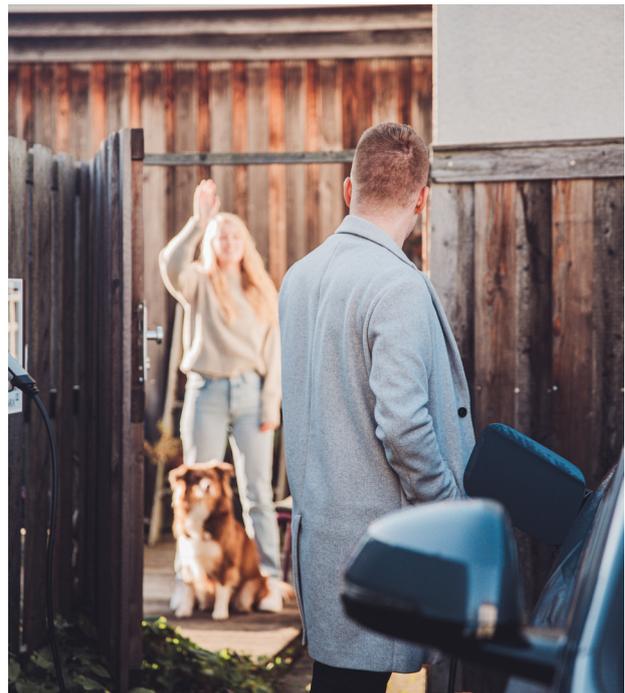


Under certain conditions, legally secure billing is possible even without a legally compliant wallbox. According to the interpretation of the German calibration authorities, a standard active energy meter of category 6.1 (commonly referred to as an MID meter) may be used if:

- The charging energy is measured by a meter that exclusively records the electrical energy transferred to the electric vehicle, i.e., no other consumers are connected.
- The electrical energy measured by this meter is supplied by only one contractual partner.
- The measuring device complies with general legal metrology requirements for electricity meters, meaning it is conformity-assessed or validly calibrated and used correctly.

In this case, the device is not considered a “measuring instrument in the field of e-mobility” as defined by category 6.8 of the REA (Regelermittlungsausschuss) under §46 of the German Measurement and Calibration Act (MessEG). As a result, extended requirements such as storing and documenting individual charging sessions do not apply.

**Important:** MID meters integrated into wallboxes often do not meet these requirements, as they are

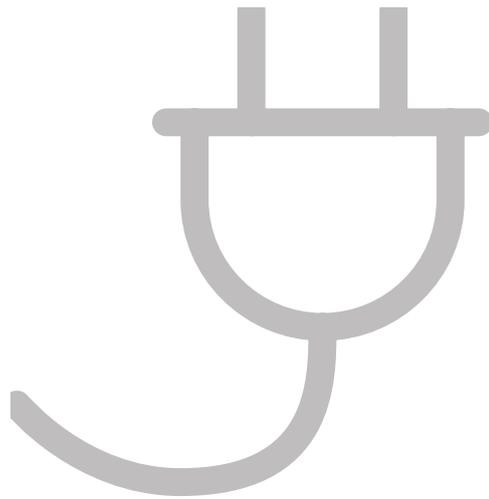


not visible or accessible. This regulation only applies if exclusively the company car is charged.

This solution is only permissible if only the company car is charged. As soon as private vehicles are also charged, legal compliance under calibration law is no longer ensured. In practice, this is often difficult to implement. For example, if the private vehicle of a partner or guest is also charged, legally secure billing can no longer be guaranteed.

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## Legally compliant wallboxes for businesses





Legally compliant wallboxes meet the highest standards for transparency and security. They store measurement data with cryptographic signatures, allow for precise time-stamping of individual charging sessions, and offer interfaces to billing systems. These wallboxes include features that enable legally secure billing even when multiple users are involved:

- **Time-stamped Charging Sessions:** The start and end of each charging session are recorded with timestamp and meter reading, and stored with cryptographic signatures.

- **Transparency Software:** Users can verify the integrity of the data at any time; any manipulation is immediately detectable.

**Advantages:**

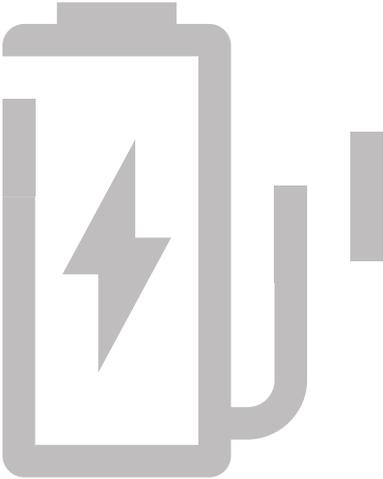
- Legal compliance for public or shared use
- Transparent processes
- Tamper-proof data
- Integration with billing systems

**Disadvantages:**

- High purchase cost (€1,200–2,500)

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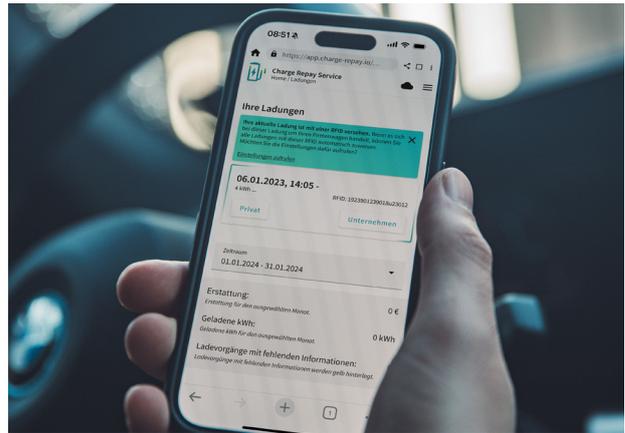
## The smart solution: Charge Repay Service



The Charge Repay Service by Phoenix Contact offers a digital, legally compliant, and cost-efficient solution for billing home charging sessions.

**What makes it unique:** The service enables charging and legally secure billing of company cars at any private wallbox—regardless of manufacturer or model. Through intelligent data capture and processing, any wallbox can effectively be enabled for legally compliant billing. This allows for reimbursement of electricity costs without the need for an expensive legally compliant wallbox. The web app also makes it possible to distinguish between private and business charging sessions.

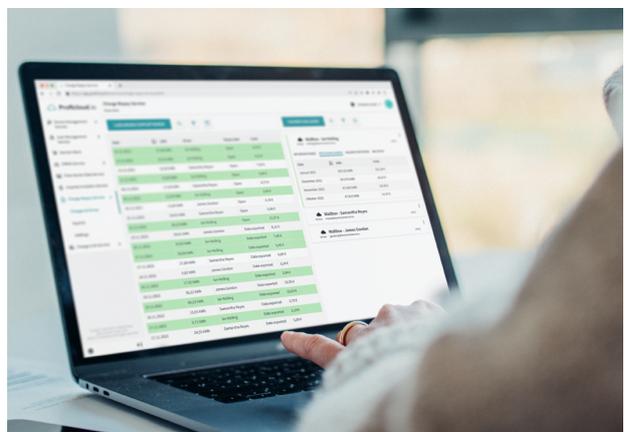
For wallboxes that are not legally compliant, Phoenix Contact offers a retrofit solution: an MID meter of type EEM-EM357 (soon to be EEM-XM357) is integrated into the power line leading to the wallbox. The prerequisite is a standards-compliant installation with only one charging point. The meter is connected to the Charge Repay Gateway, which synchronizes with the service via Wi-Fi, LAN, or mobile network.



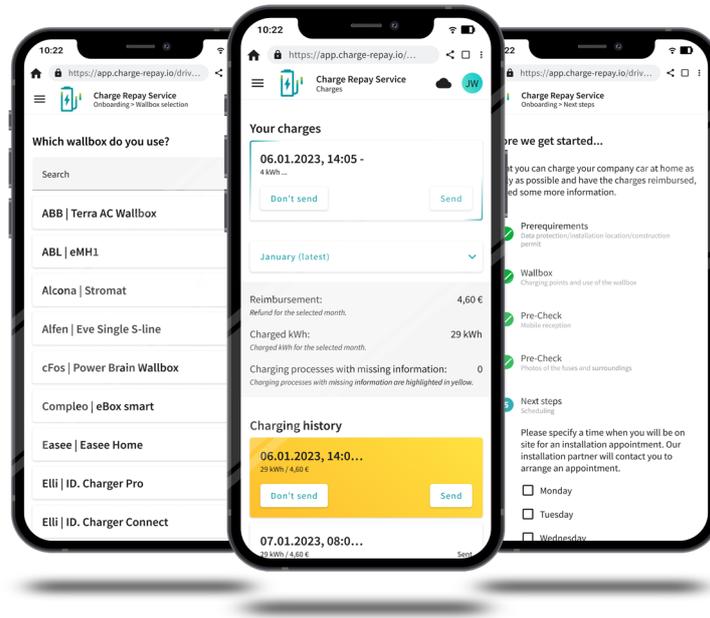
Smartphone view for drivers using the Charge Repay Service



Charging at home – Phoenix Contact charging plug connected to an EV



View for Fleet Management – Admin Interface of the Charge Repay Service



Smartphone Views in the Charge Repay Service for Drivers

### How it works:

1. Fleet management invites employees to join the service. They then register and configure their wallbox.
2. The entire process—from registration to billing—is guided by the Charge Repay Service. Users are walked through each step of the setup, making legally compliant billing possible even without technical expertise. Depending on the wallbox type, integration is either direct (for legally compliant models) or via an optional retrofit solution.
3. Once onboarding is complete, charging sessions are automatically recorded, private and business usage is separated, and the data is made

available to the employer for reimbursement.

### Benefits:

- Compatible with existing wallboxes
- GDPR-compliant and audit-proof
- Two portals: one for drivers, one for fleet management
- Separation of private and business usage
- Cost-effective alternative

### More Information

- » [More information for company car drivers](#)
- » [More information for fleet management](#)

# 7

## Comparison and decision support



<b>Decision Support: Which Solution Fits Which Scenario?</b>	
<b>Charging Scenario</b>	<b>Recommendation</b>
Company car + no additional users	MID meter, Charge Repay Service, or legally compliant wallbox
Company car + private vehicle at the same wallbox	Legally compliant wallbox or Charge Repay Service
Shared usage in a multi-party building	Legally compliant wallbox or Charge Repay Service
Automated billing desired	Legally compliant wallbox or Charge Repay Service

An MID meter measures total electricity consumption but cannot distinguish between business and private charging sessions. For legally compliant billing, this separation is essential.

The Charge Repay Service takes care of this task by digitally capturing all relevant data, processing it in compliance with data protection regulations, and making it available to the employer for reimbursement. The solution works independently of the wallbox model and offers transparency, ease of use, and future-proofing. While retrofitting an MID meter is possible, it does not replace an automated billing system. For those looking to save on investment costs while still ensuring legally secure billing, the Charge Repay Service offers a flexible alternative to a legally compliant wallbox. The latter also enables automated billing but comes with significantly higher costs.

Depending on the charging scenario, different requirements apply. For a company car without additional users, an MID meter may be sufficient. However, as soon as private vehicles or multiple users are involved, a clear separation of charging sessions becomes necessary. In such cases, the Charge Repay Service provides a convenient and audit-proof solution that reliably covers even complex situations.

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## Conclusion



Retrofitting an MID meter offers company car drivers a cost-effective way to measure electricity consumption when charging at home. However, it only makes sense if exclusively the company car is charged and no other vehicles use the wallbox.

In practice, this model quickly reaches its limits: manual data collection is error-prone, not scalable, and does not allow for separation between business and private usage. Moreover, legally secure billing is not guaranteed when multiple users are involved. Legally compliant wallboxes offer maximum transparency and security but come with high investment costs.

The Charge Repay Service from Phoenix Contact bridges this gap by enabling automated, digital, and legally secure billing—regardless of the wallbox model. Through intelligent retrofitting with an MID meter and connection to the Charge Repay Gateway, both company car drivers and businesses benefit from a flexible, audit-proof, and GDPR-compliant solution. The separation of private and business charging sessions, ease of use, and future-proof design make the Charge Repay Service the ideal choice for anyone looking to charge and bill their company car at home. For those who want to save on investment costs while still meeting all legal requirements, the Charge

Repay Service offers an innovative and sustainable alternative to traditional retrofitting or replacing the wallbox. It makes charging and billing company cars at home simple, transparent, and secure.

# Contact

## Would you like to learn more about our Charge Repay Service?

Talk to us about your individual needs, arrange a personal demo, or set up a non-binding consultation.

We look forward to exchange ideas with you!

More information on our website:

» [Charge-Repay.io](https://charge-repay.io)



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## About Phoenix Contact

Phoenix Contact is a global market leader headquartered in Germany. Our group is synonymous with future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation. A global network across more than 100 countries and 17,600 employees ensures close proximity to our customers, which we believe is particularly important.