



BEAMA Guidance Document: Measuring Instruments Regulations (MIR) in the UK and the Measuring Instruments Directive (MID) from the EU

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About BEAMA's Electrical Transport Systems Group

BEAMA's Electrical Transport Systems (ETS) Group supports the emergence of smart systems to electrify road transport and provide flexibility to the grid. BEAMA's access to Government, representation on DNO/DSO project and advisory boards, and strong collaborative links give us influence at the highest levels.

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Introduction

Electric vehicle (EV) charge point manufacturers operating in the UK must comply with relevant regulatory frameworks governing measuring instruments used in billing and energy measurement. Three key pieces of legislation impacting EV charge points are the UK's Measuring Instruments Regulations (MIR), EV (SCP) and the EU's Measuring Instruments Directive (MID). This document provides guidance on their significance, their impact on different charging scenarios, and what manufacturers need to consider for compliance.



1. What is the MID?

The Measuring Instruments Directive (MID) ([Directive 2014/32/EU](#)) is an EU Directive that sets out requirements for measuring instruments, including electricity meters used in billing applications. The MID ensures that meters used for trade are accurate, reliable, and compliant across EU member states. EV charge points with integrated energy metering functions must meet MID requirements if they are used for billing purposes.

Readers of this guidance need to be aware that it is intended for UK application only and that other national implementations of MID can vary significantly and have more stringent requirements e.g. Germany.



2. What is the MIR?

The Measuring Instruments Regulations (MIR) are the UK's domestic version of the MID, which remains applicable post-Brexit. MIR ensures that measuring instruments in the UK continue to adhere to metrology standards. While similar to the MID, there may be specific UK-specific considerations for charge point manufacturers.

Key Differences Between MIR and MID

While the technical accuracy classes remain the same, some potential differences between MIR and MID include:

1. **Certification Bodies** – Under MID, a Notified Body (NB) must certify the meter for EU compliance, whereas under MIR, a UK Approved Body (UKAB) handles certification for the UK market.
2. **Marking Requirements** – MID-compliant meters bear the CE + MID marking, while MIR-compliant meters must bear the UKCA + M marking. For products intended for UK and EU markets, CE marking is accepted provided the product was conformity assessed by an EU Notified Body (but not a UK Approved Body) and meets all the essential safety requirements and has CE marking.
When placing EVSE on the UK market that has metering equipment which complies with MIR and has been assessed by a UK approved body, a UKCA mark is required.
3. **Regulatory Divergence** – Over time, the UK may introduce MIR-specific changes to accuracy classifications or testing procedures that differ from MID.





3. When does MIR apply to ESAs?

Historically it has not been clear when MIR applies to ESAs. However, in the recent 2025 consultation on Measuring instruments display requirements for ESAs, the government stated the following which appears to remove any doubt:

3.1. MIR applies to active electrical energy meters that are being used for trade. This would include ESAs which contain a meter that is used for billing purposes and is signed up to a flexibility service agreement (e.g. when a consumer is paid or rewarded based on the meter measurement).

However, both EV(SCP) (see section 4 below) and CoP11 support the use of non-MIR-compliant energy meters within EVSEs for the measurement of energy for flex events. In the case of CoP11 the accuracy requirement is similar to MIR, but the conformity assessment process is different. The government is proposing to clarify the situation within a defined timetable (see: [SSES-consultation-response.pdf](#)).



4. What is the EV(SCP)?

The Electric Vehicle (Smart Charge Points) Regulations 2021 (EV(SCP)) make it a requirement that non-public chargers provide Demand Side Response (DSR) functionality – that is the ability to move the time of charging to avoid overloading the supply network. Although trading based on an amount of energy is taking place with DSR, there is no mention of MIR compliance (in EV(SCP)) and the accuracy requirements for metering are much looser ($\pm 10\%$) than required by MIR. So, in this case MIR compliant metering is not required.

5. Importance to EV Charge Point Users and Owners

- **Legal:** Where charge points are intended to be used for the sale of energy, purchasers should specify charge points in the UK with MIR certified energy meters for billing which may or may not be integral.
- **Consumer Protection:** MIR compliance is designed to ensure that end-users are billed fairly based on accurate measurements.
- **Market Access:** Charge points without MID/MIR certification might face regulatory hurdles in the UK and EU markets, limiting business opportunities.



6. Impact on Different Charging Scenarios

For the latest guidance on the sale of energy for charging electric vehicles, including sales made to the public, please refer to the comprehensive OFGEM document available here: [Ofgem Guidance](#)

6.1 Domestic Charging

- Home EV chargers typically do not require MIR compliance unless they are used for billing multiple users (e.g., rental properties or shared chargers in apartment/flats with communal chargers).

6.2 Public Charging

- MIR conformity is extremely important as public charge points bill customers based on energy used.
- Class accuracy requirements (such as Class B or Class C meters) are intended to ensure fair billing and consumer trust.
- Non-certified (MIR / MID) metering equipment intended for use with or within charge points are not suitable for billing.

6.3 Depot Charging

- Fleet and depot charging might require MIR compliance if costs are allocated to specific vehicles or customers e.g. billing a 3rd party contractor/outsource fleet for energy consumed or billing members of staff - as with public charging .
- Recompensing employees for home-based charging can't (yet) be done via a separate supply contract to the employee's home. Employers need to agree repayment methods via payroll or through a bundled product with the employee's domestic licensed supplier(s).
- In cases where energy metering is solely for internal company records, conformity might not be required.



7. Challenges in Compliance

- **Cost of Certification:** Obtaining and maintaining MIR approval will incur cost and be time-consuming for the EVSE manufacturer.
- **Integration with Charge Points:** Charge points requiring integrated MIR-certified meters may require significant modifications to the design to meet requirements of the notified body.
- **Regulatory Divergence:** Post-Brexit differences between MIR and MID could create complexities for manufacturers targeting both UK and EU markets particularly where the local legislation imposes more stringent requirements e.g. Germany.



8. Accuracy of Measurement Classes

MIR defines accuracy classes for measuring instruments:

- **Class A:** Lowest accuracy, generally not used for billing.
- **Class B:** Standard accuracy for residential and light commercial applications.
- **Class C:** Higher accuracy required for certain applications such as high-volume public charging.



9. Differences Between Annexes and Classes

MIR in the UK, which implement the MID (2014/32/EU), contain annexes that outline the conformity assessment procedures manufacturers must follow to ensure their measuring instruments meet regulatory requirements.

For example, let's consider an electric vehicle (EV) charge point with an integrated electricity meter. The manufacturer must choose a conformity assessment route from the annexes, depending on how they wish to demonstrate compliance.

Test Time	EEL Update	Pass / Fail	Fault Recorded	Category of Fault
10:17:04	00:22:12	Pass		
10:18:36	00:13:53	Pass		
11:00:10	00:25:54	Pass		
11:14:23	00:12:41	Pass		
11:24:46	00:09:25	Pass		
11:33:58	00:07:02	Pass		
11:44:09	00:09:14	Pass		
11:54:08	00:09:49	Pass		
12:07:22	00:12:24	Pass		
12:18:38	00:08:08	Pass		
12:18:10	00:09:06	Pass		
12:11:09	00:11:59	Pass		
09:38:18	00:09:13	Pass		
09:36:08	00:06:27	Pass		
09:42:12	00:04:43	Pass		
09:50:06	00:06:09	Pass		
10:00:11	00:09:34	Pass		
10:17:12	00:05:19	Pass		
10:27:17	00:08:47	Pass		
10:54:25	00:05:43	Pass		
10:43:46	00:08:41	Pass		
10:52:17	00:01:52	Fail	No Power	
10:01:28	00:05:47	Fail	Low Signal Strength	
10:08:08	00:05:24	Pass		
10:15:12	00:05:45	Pass		
10:08:25	00:11:25	Pass		
10:17:48	00:02:14	Pass		
12:18:02	00:01:00	Fail	Low Signal Strength	
09:00:00				Supplier
09:00:00				Supplier
09:00:00				Supplier
09:00:00				Supplier

Annexes - How to Certify

Example – EV Charge Point with Integrated Meter

Suppose an EV charge point manufacturer wants to ensure their device complies with MIR and MID. They might use one of the following options:

Annex B (Type Examination) + Annex D (Quality Assurance of Production Process)

- The manufacturer submits a sample meter to a Notified Body for testing.
- If the design passes, they receive a Type Examination Certificate (Annex B).
- They must then implement a 3rd party approved quality management system to ensure production units conform to the tested design (Annex D).

Annex B (Type Examination) + Annex F (Conformity to type based on product verification)

- The manufacturer submits a sample meter to a Notified Body for testing.
- If the design passes, they receive a Type Examination Certificate (Annex B).
- They must then appoint a notified body to inspect units off production either individually or by sample inspection.

[The Measuring Instruments Regulations 2016](#)

Annex H1 (Full Quality Assurance)

- Instead of submitting individual meters for type examination, the manufacturer applies a full quality assurance system.
- A Notified Body audits the system to confirm compliance with technical and legal requirements.

This method is often preferred by large manufacturers producing high volumes of meters.

Why This Matters for EV Charge Point Manufacturers

- Different annexes define different paths to compliance, affecting costs, lead times, and certification requirements.
- Manufacturers must ensure they select an annex that aligns with their production capabilities and business model.

Classes – Accuracy

Classes: Defining Accuracy Levels for Energy Meters in EV Charging

The Measuring Instruments Regulations (MIR) (UK) and the Measuring Instruments Directive (MID) (EU) classify electricity meters into different accuracy classes. These classes determine how precise a meter must be when measuring energy consumption. The choice of accuracy class is particularly important in EV charging scenarios, where consumers are billed based on the kilowatt-hours (kWh) consumed.

Accuracy Classes in EV Charging

MIR defines three main accuracy classes for active electrical energy meters used in billing applications:

Accuracy Class	Maximum Permissible Error (MPE)	Typical Application
Class A	$\pm 2.0\%$	Indicative measurement only, not used for billing
Class B	$\pm 1.0\%$	Domestic charging, and public charging
Class C	$\pm 0.5\%$	High-precision billing

Key takeaway: For EV charging, class B is the minimum recommended standard for meters used in billing applications.



Are Accuracy Classes the Same in MIR and MID?

Yes, under MIR, electricity meters used for billing must conform to the same accuracy class structure as under MID. This means that EV charge point manufacturers in the UK must meet MIR accuracy class requirements in the same way they would under MID when their meters are used for billing.

Why Classes Matter for EV Charge Point Manufacturers

- **Regulatory Conformity:** Charge points used for billing must use at least Class B meters. Non-compliance can lead to regulatory penalties and contractual disputes e.g. nonpayment.
- **Consumer Trust:** More accurate meters prevent overcharging or undercharging customers.
- **Market Access:** Products with certified meters (Class B or C) can be sold across UK and EU markets without additional approvals.
- **Cost vs. Benefit:** While Class C meters offer higher accuracy, they can be more expensive. Manufacturers need to consider the balance cost and compliance based on the intended market.

Final Considerations

EV charge point manufacturers must carefully select meters that meet both MID and/or MIR requirements and market expectations. If the charge point is intended for billing customers, a Class B or Class C meter is required. However, if the metering function is for user reference only, a lower-accuracy or noncertified meter might be sufficient.





10. Potential Impact on Business

Non-compliance can limit product sales in regulated markets.

Certification provides a competitive advantage by ensuring credibility and consumer trust.

Manufacturers might need to redesign products or integrate MID/MIR-compliant meters.

Dispute over billing might be upheld in favour of the recipient if the EV charge point does not have a MID/MIR meter.

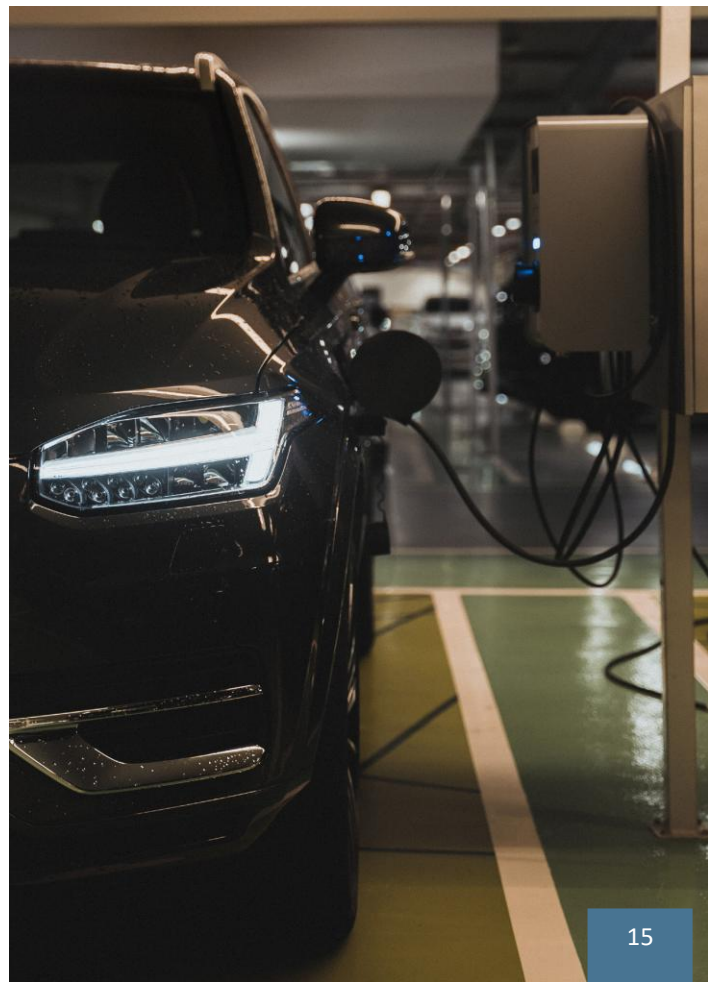
11. Do You Need to Conform to MIR Requirements?

If your charge points are used for billing, compliance is required.

If meters are only used for indicative purposes (not billing), compliance might not be required.

Understanding national requirements and market expectations is crucial for compliance planning.

Legislation is always subject to change. For example, the recently published SSES consultation response which proposes to mandate MIR requirements on all charge points during 2027



Conclusion

For EV charge point manufacturers, understanding and complying with MID/MIR is essential for market access and consumer protection. While domestic charge points do not currently require compliance, public and commercial applications do demand adherence to legal metrology standards. Ensuring MID/MIR conformity can enhance business opportunities, prevent legal risks, and build trust among customers. Manufacturers should carefully assess their product offerings and take appropriate steps to align with regulatory requirements in both the UK and EU markets.

[The Measuring Instruments Regulations 2016](#)
[OFGEM guidance](#)



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