Compliant EV Charging Without the Cost of a Type B – Residual Current Device

As electric vehicle (EV) charging infrastructure grows, ensuring safe and compliant installations is more important than ever. When it comes to protecting against DC leakage currents, the industry standard no longer needs to default to expensive **Type B RCDs**. A **6mA DC RCM** provides a smarter, cost-effective and standards-compliant alternative—without compromising safety.

Compliant, Cost-Effective Protection for Electric Vehicle Supply Equipment

DC Leakage in EV Charging

EVs use onboard chargers that can produce smooth DC fault currents under certain failure conditions. If DC leakage exceeds 6mA, it can **blind traditional Type AC or Type A RCDs**, preventing them from detecting dangerous faults. This is why additional protection is required.

Historically, **Type B RCDs** have been specified for this application—but they come at a higher cost and often with unnecessary functionality.

Today, international standards recognize a more targeted and efficient solution: a **6mA DC Residual Current Monitor (RCM)** combined with a **Type A RCD**. This combination delivers effective, standards-compliant protection at a significantly lower cost and with greater design flexibility.

The Standards

International standards such as **IEC 61851-1** and **IEC 60364-7-722** clearly outline that:

"EV charging equipment incorporating a Type A RCD may be used if it is combined with a device that detects DC residual currents and disconnects the supply at a maximum of 6mA DC."

This means you don't need a full Type B RCD. Instead, you can:

Use a **Type A RCD**
+
A **6mA DC Residual Current Monitor** that triggers disconnection

This setup ensures compliance with global installation regulations while reducing cost and complexity.

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Benefits of Using a 6mA DC RCM Instead of a Type B RCD

✅ 1. Lower Cost

A DC RCM plus a Type A RCD is significantly more affordable than a Type B RCD

✅ 2. Smaller Footprint

Ideal for compact EV charge point designs and retrofits

✅ 3. Targeted Protection

Designed specifically to detect the type of DC leakage EVs may generate

✅ 4. Flexible Integration

Can be built into charge controllers or external enclosures

✅ 5. Standards-Compliant

Fully meets IEC and regional wiring regulations

Conclusion

The **6mA DC Residual Current Monitor** presents a technically sound, cost-effective alternative to the use of Type B RCDs in EV charging infrastructure. By complying with IEC standards and targeting the specific risk of DC leakage currents, this approach enables safer, smarter EVSE system design.

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