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Type B HP RCD Heat Pump Consumer Unit

A new addition to the Whitecliffe range of renewable energy boards.

Metal enclosure containing a surge protection and a B type RCD to protect against DC earth leakage.

Complete Protection in One Unit
Each metal enclosure includes a Type B RCD, offering full protection against DC earth leakage currents—essential for modern inverter-driven heat pump systems.

Part code	Description	Dimensions
WME12/HP40C	Metal 8 module enclosure with surge protection, type-B RCD and 16A MCB's	304x240x112
WME12/HPRC40C	Metal 08 module enclosure with surge protection, 40A RCD and two 16A RCBO's	304x240x112

Custom Build Variants are available,

contact Whitecliffe Technical Dept with your requirements

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• Type B HP RCD Heat Pump RCD

The WHP B Type RCD is designed to detect and trip under smooth DC faults at any level. Tested to operate at frequencies above 20 kHz, with a minimum tripping threshold of 150 mA for frequencies over 1 kHz.

Type B High-Performance RCDs: Technical Overview

- **Two pole two module:** Space saving design enables easier installation using standard busbar.
- **Compliance with BS 7671 Standards**: These devices meet the requirements set out in BS 7671, ensuring they provide the necessary protection in modern electrical installations.
- **Effective Operation at High Frequencies**: Designed to function reliably at frequencies of 20 kHz and above, making them suitable for applications involving variable-speed drives and heat pump systems.
- **Detection of Smooth DC Fault Currents**: Capable of detecting and interrupting continuous smooth DC residual currents, which is essential for comprehensive fault protection in systems where such currents may be present.

Why Type B HP RCDs Are Important for Heat Pumps

Modern heat pumps, especially those with inverter-driven compressors, create high-frequency electrical currents when converting AC to DC power. These can include smooth DC and high-frequency residual currents that regular Type B RCDs (designed for 50 Hz) may not detect properly.

Not all Type B+ devices are suitable for heat pumps. That's why Whitecliffe Type B HP RCDs, designed specifically for these conditions, are the right choice for safe and compliant installations.

Height - 82mm

Width - 35mm

Depth - 77mm

What Makes Type B HP RCDs Different?

Type B HP RCDs are specially developed for use with heat pump systems. They meet all the requirements of standard Type B RCDs, but go a step further—they're built to operate at frequencies above 20 kHz, which are common in modern heat pumps.

They also ensure reliable protection by tripping at a minimum threshold of 150 mA for frequencies over 1 kHz, offering an added layer of safety in high-frequency environments.

Why Some Type B RCDs Trip at 1 kHz

Not all Type B RCDs are built to cope with the high-frequency currents produced by modern heat pumps. Some models are only rated to handle frequencies up to 1 kHz, which means they can trip unnecessarily when exposed to the higher-frequency residual currents these systems generate.

This can cause nuisance tripping and unexpected downtime. That's why it's important to use a Type B HP RCD—specifically designed to handle higher frequencies without compromising performance or reliability.

Type 'B' devices are also suitable for type 'AC', type 'A' and type 'F' applications

Which RCD to Use

AC - not suitable for heat pumps

A - unreliable tripping under smooth DC faults or high-frequency currents.

F - Limited high-frequency performance; ineffective against smooth DC faults.

B - Reliably detects and trips on smooth DC faults at all levels, though limited to frequencies up to 1 kHz.

B HP - Detects and trips on smooth DC faults at all levels. Verified to handle frequencies above 20 kHz with a minimum tripping threshold of 150 mA above 1 kHz