**Bender UK Ltd**
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# Equipotential Bonding Busbars (EBB) Datasheet

**An Equipotential Bonding Busbar (EBB) should be included within the electrical infrastructure of medical locations to support supplementary protective bonding compliance and reduce the risk of electric shock to the patient by limiting touch voltages. Its use aligns with the requirements and guidance set out in BS 7671:2018 Amendment 4:2026 Section 710, IET Guidance Note 7 Section 9, and HTM 06-01:2017 for Group 1 and Group 2 medical locations.**

All protective earthing conductors, extraneous-conductive-parts, exposed-conductive-parts and supplementary equipotential bonding connection points within the patient area shall be connected to an EBB linked to the medical location earthing system. This helps equalise potential differences between conductive parts in the patient area. Conductive parts intended to remain isolated from earth shall not be connected to the EBB.

## Installation and testing requirements

Within the medical locations of group 1 and 2 the resistance between any two conductive parts shall meet the requirements of BS 7671:2018 Amendment 4 regulation 710.415.2.2 and shall not exceed 0.20Ω. Individual cables from EBB to any point in patient area shall be 0.10Ω.





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## EBB Location

EBBs should be located inside or directly outside the area it is serving, below ceiling level, accessible so as to minimise disruption along with infection control issues during periodic inspection and testing and maintenance. Bender EBBs are arranged to enable single conductor connection, facilitate easy fault finding and are clearly labelled.

## Bender UK EBB range

Bender UK provides a high-quality range of EBBs that are designed in-house and manufactured in the United Kingdom. Suitable for Group 1 and Group 2 medical locations, the range is offered in four variants and can be integrated into critical care power systems incorporating Bender Medical IT and UPS equipment. Flush and surface-mounted versions are available, with fixed stud connections supplied complete with brass washers, coil spring washers and brass nuts for simple cable termination.

- IEC 60634-7-710: 2021 Compliant
- BS 7671:2018 Amendment 4 Compliant
- HTM 06-01 2017 Compliant
- IET guidance note 7 section 9 compatible
- Flush or surface mount options available on all variants
- Custom variants available on request, all standard variants from stock

**Type 1** – This EBB is designed for medical imaging rooms, including X-ray, CT and angiography areas.

**Type 1 – NF** – This non-ferrous Type 1 EBB is designed for MRI rooms and other areas with strong magnetic fields. Its non-ferrous construction helps prevent magnetic attraction, field distortion and potential reduction in image quality.

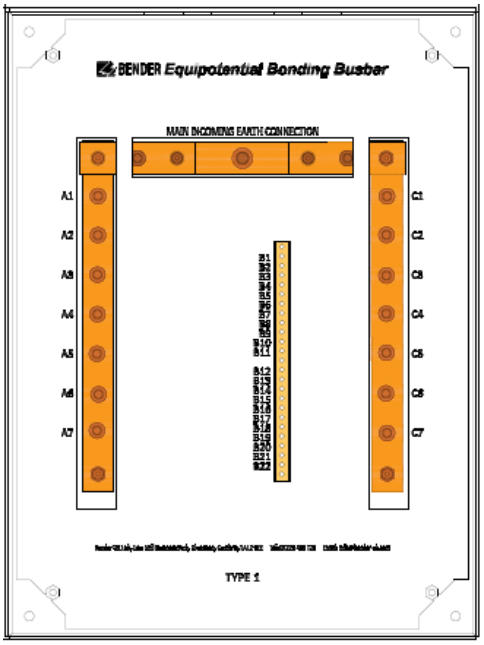

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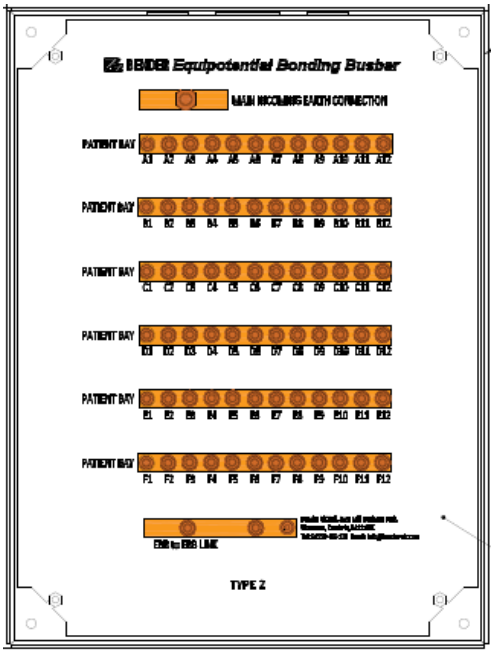
**Type 2** – The multi-patient EBB is typically used in recovery areas, wards and other locations where several patients are treated or accommodated in close proximity.

**Type 3 –** The theatre EBB is intended for rooms where patients undergo treatment or procedures. Any associated anaesthetic rooms are bonded through the same EBB.

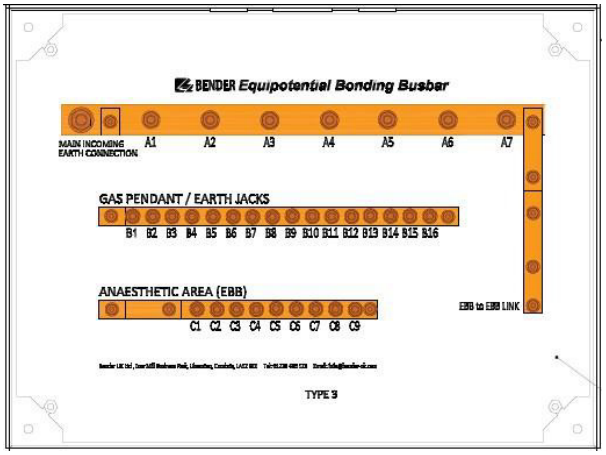
**Type 4** – This EBB is used for group 1 rooms such as individual treatment rooms but can be used in group 2 areas also where applicable.



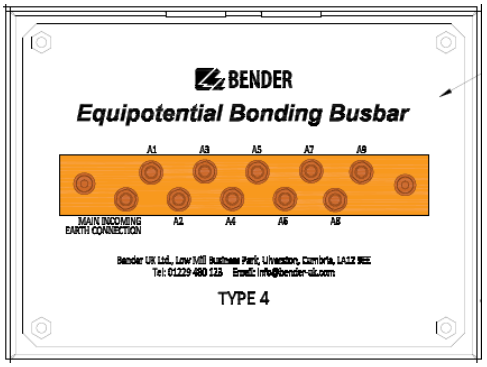

**Type 1 – Imaging area**




**Type 2 – Multi Patient**




**Type 3 – Theatre**




**Type 4 – Group 1 or General purpose use**



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# Product Specification Matrix

| Specification | Type 1 | Type 1 NF | Type 2 | Type 3 | Type 4 |
|---|---|---|---|---|---|
| Back Box Material | Mild Steel | Aluminium | Mild Steel | Mild Steel | Mild Steel |
| Dimensions (W x H x D) | 300 x 400 x 77.5 mm | 300 x 400 x 77.5 mm | 300 x 400 x 77.5 mm | 400 x 300 x 77.5 mm | 200 x 150 x 77.5 mm |
| Finish | White powder coated | White powder coated | White powder coated | White powder coated | White powder coated |
| Top Entry Knockouts | 2 x 25 mm<br>1 x 40mm | 2 x 25 mm<br>1 x 40mm | 2 x 25 mm<br>1 x 40 mm | 2 x 25 mm<br>1 x 40 mm | 2 x 25 mm<br>1 x 40 mm |
| Back Entry Knockout | 1 x 40 mm | 1 x 40 mm | 1 x 40 mm | 1 x 40 mm | 1 x 40 mm |
| Main Copper Bar Dimension | 20 x 10 mm | 20 x 10 mm | 20 x 5 mm | 20 x 5 mm | 25 x 4 mm |
| Sub Copper Bar Dimension | N/A | N/A | 12 x 4 mm | 12 x 4 mm | N/A |
| Central Bar Dimension | 8 x 8 mm | N/A | N/A | N/A | N/A |
| Busbar Current Rating | Copper - 400 A | Copper - 400 A | Copper - 200 A | Copper - 200 A | Copper - 200 A |
| Busbar Stand-offs | GRP & Steel | GRP & Brass | GRP & Steel | GRP & Steel | GRP & Steel |
| Connection Torque Setting | 8 Nm | 8 Nm | 8 Nm | 8 Nm | 8 Nm |
| Internal Front Cover Panel | White powder coated aluminium | White powder coated aluminium | White powder coated aluminium | White powder coated aluminium | White powder coated aluminium |
| Internal Cover Stand-offs | Zinc coated steel | Stainless steel | Zinc coated steel | Zinc coated steel | Zinc coated steel |
| Front Cover & Fixing Screws | Acrylic and stainless steel | Acrylic and stainless steel | Acrylic and stainless steel | Acrylic and stainless steel | Acrylic and stainless steel |
| Front Cover Variant | Surface or flush | Surface or flush | Surface or flush | Surface or flush | Surface or flush |


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## Hardware Summary

| Connection Detail | Type 1 | Type 1 NF | Type 2 | Type 3 | Type 4 |
|---|---|---|---|---|---|
| Main Earth Connection Point | Fixed M8 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M8 nut, 2 x M8 washers and spring coil washer<br>All brass. | Fixed M8 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M8 nut, 2 x M8 washers and spring coil washer<br>All brass. | Fixed M8 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M8 nut, 2 x M8 washers and spring coil washer<br>All brass. | Fixed M8 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M8 nut, 2 x M8 washers and spring coil washer<br>All brass. | Fixed M5 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M5 nut, 2 x M5 washers and spring coil washer<br>All brass. |
| Outgoing Connections - Main Busbars | Fixed M6 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M6 nut, 2 x M6 washers and spring coil washer<br>All brass. | Fixed M6 bolt, tooth lock washer, nut and washer<br><br>Loose bagged: M6 nut, 2 x M6 washers and spring coil washer<br>All brass. | N/A | Fixed M6 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M6 nut, 2x M6 washers and M6 spring coil washer<br>All Brass. | Fixed M5 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M5 nut, 2x M5 washers and M5 spring coil washer<br>All Brass. |
| Outgoing Connections - Sub Copper Bars | Fixed threaded brass M4 connection busbar | Fixed threaded brass M4 connection busbar | Fixed M5 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M5 nut, 2 x M5 washers and spring coil washer<br>All brass. | Fixed M5 bolt, tooth lock washer, nut and washer.<br><br>Loose bagged: M5 nut, 2 x M5 washers and spring coil washer<br>All brass. | N/A |

## Bender UK for Healthcare & Industrial Applications




**Clinical Range covering Medical Pendants, Operating Lights, Surgeons Tables & Theatre Control Panels**
**Sales & Service of a Comprehensive Range of Medical IPS, Scalable Modular & Monolithic UPS Systems**
**Central Battery Systems for EN50171 Emergency Applications**
**Static Transfer Switches (32A to 1250A), Auto & Manual Changeover Panels including ATICS**
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**Preventative & Responsive Maintenance Agreements**
**UPS Battery Replacements & Overhauls**


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