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V1.23

# Potential Equalisation Socket – POAG-PES-WM Series

[Equipotential Earth Bonding Connection Point]

THE KING'S AWARDS FOR ENTERPRISE
2023
INNOVATION

CABLEFLOW™
HEALTHCARE

# applications

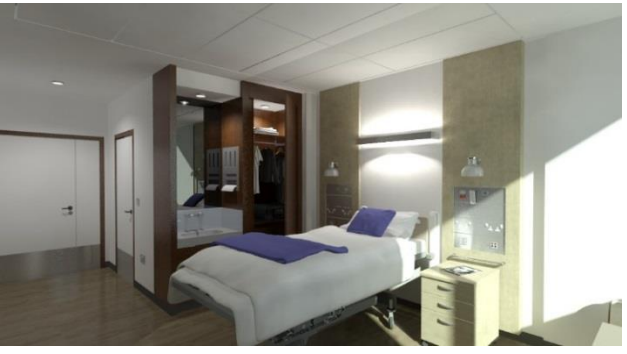
CABLEFLOW

2023











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Innovation is at the heart of an evolutionary healthcare infrastructure. Challenging boundaries whilst being respectful of clinical skills are two valued philosophies which ensure knowledge led developments in bedroom architecture.

At **CABLEFLOW** we recognise the need to be different, to ensure product development offers practical and sustainable progression whilst always ensuring full compliance with Patient Safety Standards and improving the clinical environment for clinicians and patients alike.

We are proud of our British healthcare heritage which offers universal application around the world. Having been conferred both a prestigious **Queens Award for Enterprise: Innovation** and a **Kings Award for Enterprise: Innovation** users of our products and systems take confidence in this unique recognition of Cableflow as a market leader.

Recognised as Britain's foremost medical supply unit manufacturer our range of products whether standard or bespoke offer solutions to satisfy many in-patient design concepts across all clinical environments whether primary or tertiary care areas, and every speciality in-between.

In 2005 our **integra** product became the first and only linear bedhead trunking system to achieve Royal recognition with a **Queens Award for Enterprise: Innovation** from Her Majesty Queen Elizabeth II. This achievement was further endorsed in 2023 with a **Kings Award for Enterprise: Innovation** for our (POAG) equipotential earth bonding socket.

Improving the clinical architecture, patient and clinician experience whilst ensuring flexibility and adaptation in later use are hallmarks of our innovative bedhead solutions. Whether in an acute hospital setting or more domestic environments such as Hospice's and the like our systems can be tailored to your requirements.

## POAG-PES-WM series

# **Potential Equalisation Socket** – Wall Mount

Publication of BS 7671 (18th Edition of the Wiring Regulations) Amendment 2 defines that it is now a mandated requirement in accordance with Section 710 to provide *supplementary equipotential bonding* in a UK healthcare facility at every Group 1 and Group 2 medical location. The same requirement applies globally within HD 60 364-7-710.

In all such medical locations this earthing facility must be provided whether bedhead services are supplied within trunking systems (*medical supply units*) or by wall mounted outlets.

**MEDICAL ELECTRICAL EQUIPMENT**

The constant use of Medical Electrical (ME) equipment in the healthcare environment increases the risk to the patient if two separate ME items are touched simultaneously. Significant touch voltages within the medical location can occur and may be detrimental to both the patient or clinician.

In a healthcare environment the purpose of supplementary equipotential (*potential equalisation*) bonding is to equalise the differences in earth potential between differing metal parts that can be touched simultaneously, or to reduce differences of earth potential which can occur during the operation of ME devices and conductive parts of other objects.

**REDUCING PATIENT AND CLINICIAN SHOCKS**

Electric shocks can vary considerably in intensity although some shocks are so small they may not even be felt, particularly by an anaesthetised patient or clinical staff. However, the residual risk is that they lead to major issues such as Ventricular Fibrillation (VF) of the heart and this must be avoided.

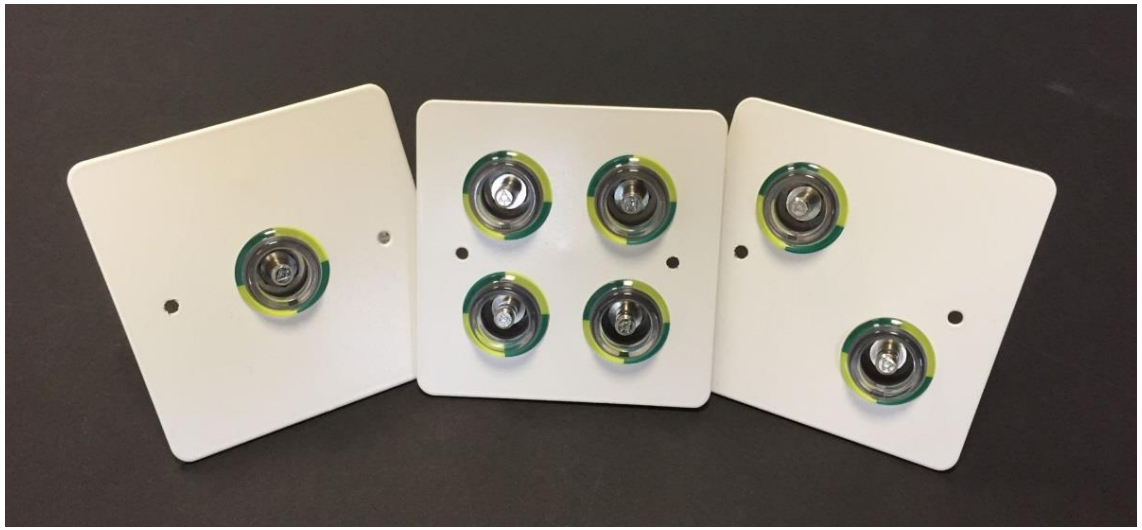
Whilst such shocks of around 10mA may simply be experienced as an unpleasant tingle, an anaesthetised patient may not react to such a sensation in a way that would alert clinical staff and therefore go undetected, perhaps on several occasions. Larger currents can deliver a more fatal impact to a patient or clinical staff member.

To address this risk area it is essential that the medical location is properly earthed and all appropriate precautions taken to prevent any leakage current through the patient. This must not exceed 50 mA when assuming that the patient's body resistance is 1,000 Ohm.

Where surface mounted containment such as medical supply units is not used, the Cableflow **POAG-PES-WM series** provides a resilient polyester powder coated 1.2mm thick aluminium facia plate to meet the requirements of BS7671 and HTM 06-01 in the patient environment.

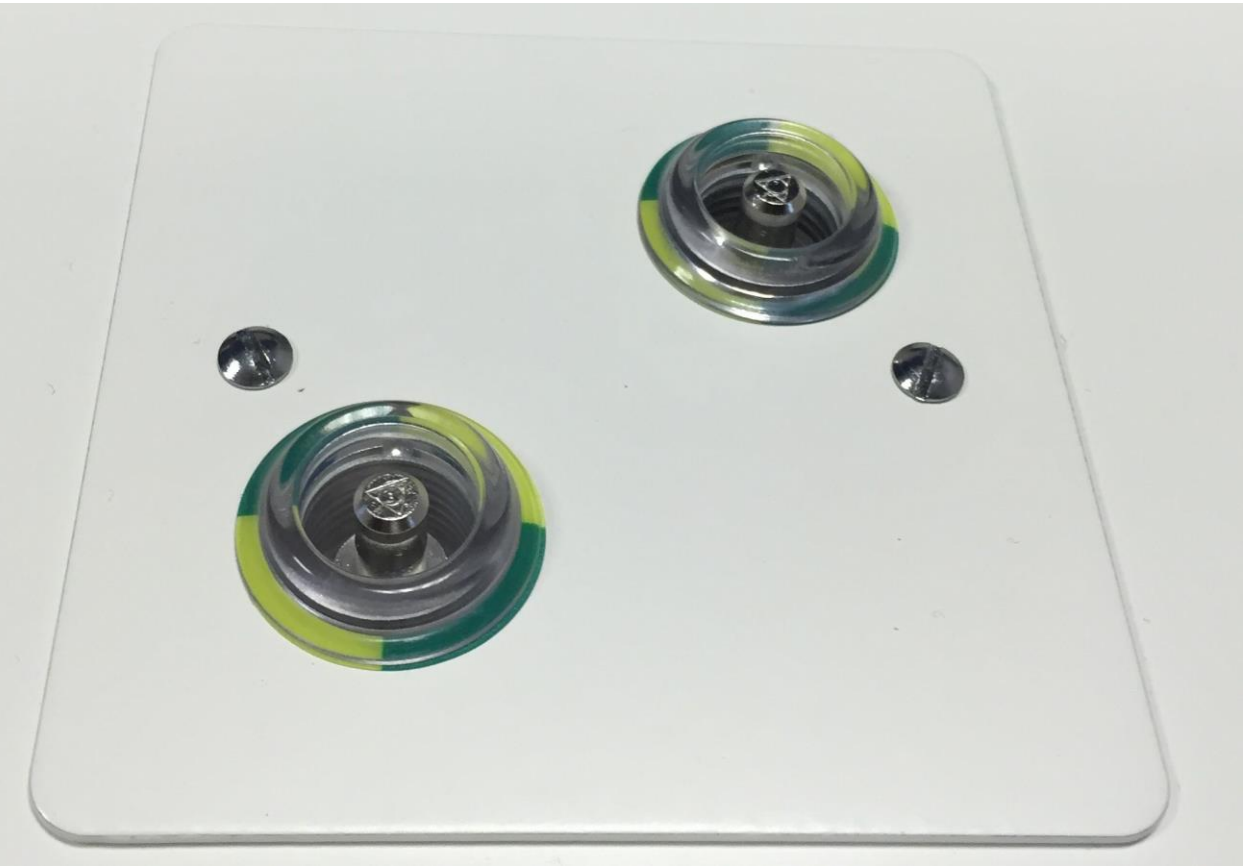
**VARIABLE CONFIGURATIONS**

Supplied as a standard 1gang facia configuration, it is fitted with 1, 2 or 4 gang POAG 6/25 potential equalisation sockets. Each facia plate is finished in RAL 9010 and supported by a 25 year Applicators Guarantee and can be applied in all Group1 or 2 medical locations.



**MANDATED REQUIREMENT (BS 7671 & HD 60 364-7-710)**
Supplementary equipotential bonding points must be provided in each medical location where ME equipment may be provided. All ME equipment should be manufactured with a corresponding inter-connection point in accordance with IEC 60601-1 to facilitate equipment connection by the use of a proprietary connecting lead.

BS7671 clause 710.415.2.1 requires that in each medical location of Group 1 and Group 2 activity, supplementary equipotential bonding connection points shall be installed. It states:



*Supplementary equipotential bonding connection points for the connection of ME equipment shall be provided in each medical location, as follows:*

*Group 1: a minimum of one per patient location*

*Group 2: a minimum of four but not less than 25% of the number of medical IT socket-outlets provided per patient location.*

**ALL PATIENT LOCATIONS**
In practice this is *any* location within a healthcare facility where a patient may be treated, but not limited to being reviewed, consulted, treated, administered, retained overnight or for *any* form of procedure. The Regulation must be adhered to by designers and installers alike and verified by the Approved Person (AP) on each project.

**POAG – PES CONNECTION**
The **POAG-PES-WM** series of outlet plates are fitted with a potential equalisation socket (POAG-PES) complying with the universally accepted DIN 42801 standard. A clear polycarbonate injection moulded insulation housing encapsulates a green/yellow micro-film label displaying the IEC 60417-5021 symbol for potential equalisation.

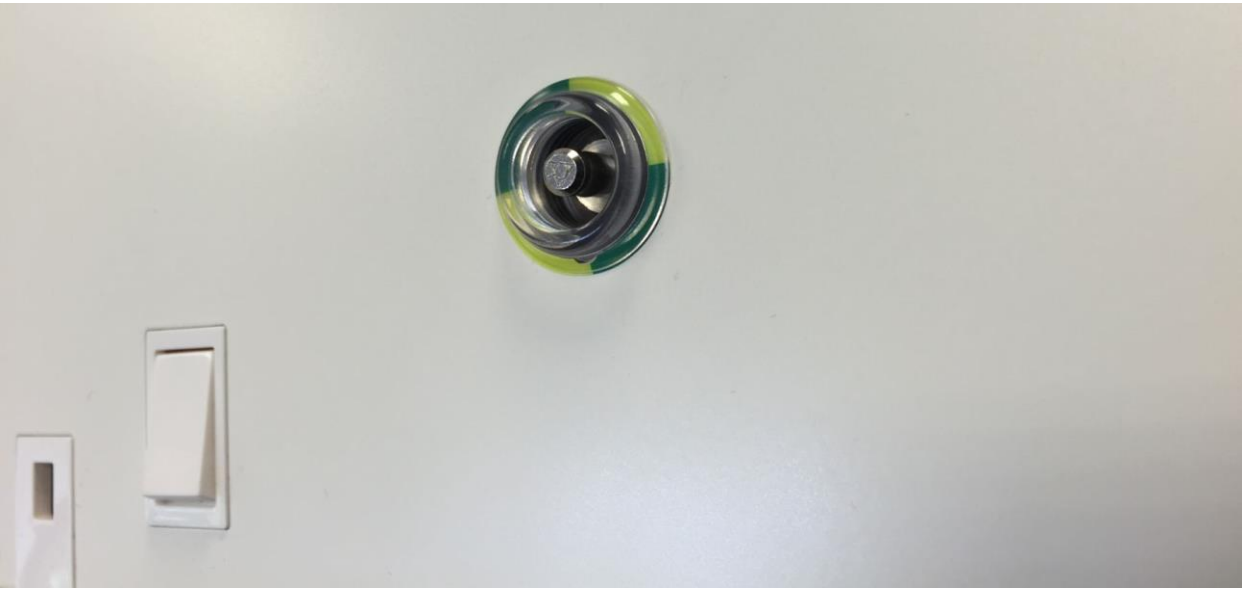
The design of the moulding has been carefully considered to create optics which work simultaneously with the label to magnify the image from all viewable angles, whilst identifying the component as a potential equalisation (supplementary equipotential bonding) point in accordance with IEC 60 601-1.

The insulation housing holds a TUV certified POAG connecting pin to DIN 42801 for proprietary lead connection. The POAG pin is fully insulated from the metal facia plate by the moulding and ensures a clean earth path to the equipotential bonding bar of the installation. The POAG pin is manufactured from nickel-plated brass, supplied complete with nut/washer assembly and primed for connection to the equipotential bonding cabling of either 4mm² or 6mm².

The complete **Cableflow POAG-PES-WM** assembly is proven to be resilient to all healthcare cleaning chemicals commonly used.

Each facia plate assembly can be supplied with a 47mm deep BS 4662 back box and fixing screws ready for installation although these are not supplied as standard.

**HIGH-GRADE MATERIALS**
The amalgamation of high quality British manufacturing and the finest grade materials in each component ensures reliable potential equalisation in medical locations, supported by the Cableflow reputation as a globally renowned manufacturer of medical workplace components.



**APPLICABLE STANDARDS:**
**IEC 60601-1**: Medical electrical equipment – General requirements for safety
**ISO 11197**: Medical supply units – essential safety requirements
**IEC 60364-1**: Low-voltage electrical installations – Part 1: Fundamental principles, assessment of general characteristics, definitions.
**IEC 60364-7-710**: Electrical Installations of buildings – requirements for special installations or locations – Medical locations
**BS 7671**: 18th Edition Wiring Regulations + Amd 2
**DIN 42801**: Potential equalisation leads – Connecting pins
**DIN 42801-2**: Potential equalisation leads – Connecting sockets
**HTM 08-03**: (UK DoH) Bedhead Services

**ORDER INFORMATION - COMPLETE ASSEMBLY PART NUMBERS:**
1gang outlet: POAG-PES-WM1
2gang outlet: POAG-PES-WM2
4gang outlet: POAG-PES-WM4

*If a 47mm BS4662 back box is required add digits 47 to the end of the part nr e.g: POAG-PES-WM1/47*

**THE KINGS AWARDS FOR ENTERPRISE: INNOVATION**
The POAG-PES was recognised by His Majesty King Charles III as an exceptional innovation which has proven its commercial success since launch and this success was recognised by the appointment of a Kings Award for Enterprise in the Innovation category in 2023. Just 47 innovation awards were made in 2023 across a total of 149 Awards to British industry.

The Kings Awards for Enterprise are recognised as the highest accolade of achievement for a British business and reflect well-established, innovative businesses that have proven their value to the UK economy and are financially stable. In 2005 Cableflow were similarly recognised with a Queens Award for Enterprise, also for Innovation from Her Majesty Queen Elizabeth II.

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THE KING'S AWARDS FOR ENTERPRISE 2023 INNOVATION

# Medical Supply Units applicable standards compliance declaration

| Document Reference | Document Description |
|---|---|
| BS 476-10: 2009 | Fire tests on building materials and structures. Guide to the principles, selection, role and application of fire testing and their outputs |
| BS 1363-1:2016 + A1:2018 | 13 A plugs, socket-outlets, adaptors and connection units. Specification for rewireable and non-rewireable 13 A fused plugs |
| BS 1363-2:2016 + A1: 2018 | 13 A plugs, socket-outlets, adaptors and connection units. Specification for 13 A switched and unswitched socket-outlets |
| BS 1363-4:2016 + A1 2018 | 13 A plugs, socket-outlets, adaptors and connection units. Specification for 13 A fused connection units switched and unswitched |
| BS 5266-1:2011 | Emergency lighting. Code of practice for the emergency escape lighting of premises |
| BS 5733:2010+A1:2014 | General requirements for electrical accessories. Specification |
| BS 6701: 2016 | Telecommunications equipment and telecommunications cabling. Specification for installation, operation and maintenance |
| BS 6972: 1988 | Specification for general requirements for luminaire supporting couplers for domestic, light industrial and commercial use |
| BS 7671:2018 + A2 2022 | Requirements for Electrical Installations 18th Edition IET Wiring Regulations (incorporating Section 710 (Special Locations Medical Locations) |
| BS 8300-1:2018 | Design of buildings and their approaches to meet the needs of disabled people. Code of practice |
| BS EN 12206-1:2021 | Paints and varnishes. Coating of aluminium and aluminium alloys for architectural purposes. Coatings prepared from coating powder |
| BS EN 12464-1: 2021 | Light and lighting. Lighting of work places. Indoor work places |
| BS EN 13032-2: 2017 | Light and lighting. Measurement and presentation of photometric data of lamps and luminaires. Presentation of data for indoor and outdoor work places |
| BS EN 50083-2:2012 | Cable networks for television signals, sound signals and interactive services. Electromagnetic compatibility for equipment |
| BS EN 50085-1:2005+A1:2013 | Cable trunking systems and cable ducting systems for electrical installations. General requirements |
| BS EN 50085-2-1:2006 | Cable trunking systems and cable ducting systems for electrical installations. Cable trunking systems and cable ducting systems intended for mounting on walls and ceilings |
| BS EN 60439-5: 2006 | Low-voltage switchgear and control gear assemblies. Particular requirements for assemblies for power distribution in public networks |
| BS EN 60529:1992+A2:2013 | Degrees of protection provided by enclosures (IP code) |
| BS EN 60598-1:2021 | Luminaires. General requirements and tests |
| BS EN 60598-2-22:2014 +A1: 2020 | Luminaires. Particular requirements. Luminaires for emergency lighting |
| BS EN 60601-1-6:2010+A1:2013 +A2:2020 | Medical electrical equipment. General requirements for basic safety and essential performance. Collateral standard. Usability |
| BS EN 60601-1-2: 2015 + A1:2021 | Medical electrical equipment. General requirements for basic safety and essential performance. Collateral standard. Electromagnetic compatibility. Requirements and tests |
| BS EN 60669-1:2018 | Switches for household and similar fixed-electrical installations. General requirements |
| BS EN 61000-6-3:2021 | Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments (formally BS EN 50081-1) |
| BS EN 61000-6-4:2019 | Electromagnetic compatibility (EMC). Generic standards. Emission standard for industrial environments |
| BS EN 61000-6-1:2019 | Electromagnetic compatibility (EMC). Generic standards. Immunity for residential, commercial and light-industrial environments ( formally BS EN 50082-1) |
| BS EN ISO 7396-1:2016 +A1:2019 | Medical gas pipeline systems. Pipeline systems for compressed medical gases and vacuum |
| BS EN ISO 7396-2: 2007 | Medical gas pipeline systems. Anaesthetic gas scavenging disposal systems |
| BS EN ISO 9170-1:2017 | Terminal units for medical gas pipeline systems. Terminal units for use with compressed medical gases and vacuum |

| Document Reference | Document Description |
|---|---|
| BS EN ISO 9170-2:2008 | Terminal units for medical gas pipeline systems. Terminal units for anaesthetic gas scavenging systems |
| BS EN ISO 7599:2010 | Anodizing of aluminium and its alloys. General specifications for anodic oxidation coatings on aluminium |
| BS EN ISO 11197:2019 | Medical supply units |
| ISO 19054:2006 + A1:2016 | Rail Systems for supporting medical equipment |
| HBN 00-03 | Designing generic clinical and clinical support spaces |
| HBN 00-04 | Circulation and communication Spaces |
| HBN 00-09 | Infection control in the built environment |
| HBN 04-01 | Adult in-patient facilities: planning and design |
| HBN 04-02 | Critical care units |
| HBN 4, Supplement 1 | Isolation facilities for infectious patients in acute settings |
| HBN 6 | Facilities for Diagnostic imaging and interventional radiology: |
| HBN 07–01 | Satellite Dialysis Unit |
| HBN 07-02 | Main Renal Unit |
| HBN 09-02 | Maternity Care Facilities |
| HBN 09-03 | Neonatal Units |
| HBN 57: 2003 | Facilities for critical care |
| HTM 00 | Building Engineering in the Health Sector |
| HTM 02-01 | Medical gas pipeline systems |
| HTM 06-01 | Electrical services: supply and distribution |
| HTM 06-02 | Electrical safety guidance for low voltage systems |
| HTM 08-03 | Management of bedhead services in the health sector |
| HTM 17 | Health Building Engineering Installations |
| HTM 2014 | Abatement of electrical interference |
| HTM 2020 | Electrical safety code for low voltage systems |
| CIBSE LG 02: 2019 | Lighting guide - Hospitals and health care buildings |
| CIBSE LG 3: 2001 | Lighting guide - The visual environment for Display Screen Use |
| CIE | European Lighting Guide |
| NHS SPEC C49: 1997 | Nurse Call Systems. Revision 3 |
| EU MDR 2107/745 | EU Medical Device Regulation |
| UK MDR 2002 | UK Medical Device Regulations (SI 2002 (no. 618, as amended) |

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