Healthcare Solutions



Design the future of energy



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Why Choose Bender?

Operating Lights

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Operating Tables

Clinical Pendants

Open OR™

Service & Maintenance



Innovative Solutions for Healthcare

In the dynamic world of healthcare, you face unique challenges that demand innovative and reliable solutions. Renowned for pioneering developments in insulation monitoring and healthcare technology, Bender is strategically positioned across the UK and Ireland to ensure you have access to our expertise when you need it.

At the core of your operations is the need for uncompromised quality and reliability, especially in critical care and operating room environments.

Our expert team is at the heart of our operations. We don't just design, manufacture, install, supply, and maintain critical care power and operating room solutions; we're committed to innovation and excellence. Our turnkey solutions include Group 1 and 2 medical areas where, beyond our core products, we offer engineering expertise, customised solutions, and ground-breaking product development. This approach enables our customers to innovate, remain compliant, and pre-emptively address any potential failures or shutdowns in critical areas.

Understanding the complexities of our customer requirements, we collaborate with industry leaders and are the authorised distributors of Merivaara clinical products. This partnership enriches our offering with additional value and expertise tailored to meet your diverse needs. Our services extend to complementary equipment, third-party maintenance, and a variety of hospital equipment, crafting a comprehensive solution for your healthcare needs.

As a supplier of choice to the NHS, private medical groups, and leading OEMs, the Bender reputation for reliability and innovation is recognised throughout the healthcare sector. As a valued customer, you gain the advantage of our technology and solutions, backed by our commitment to service. With 24/7, 365 maintenance, technical support, and call-out services, we ensure that you are never alone in facing the challenges of healthcare delivery.

Ensuring Uninterrupted Healthcare

In healthcare, uninterrupted electrical supply is crucial not only for patient and staff safety but also for the effective operation of advanced medical equipment. The HTM's risk-grading system emphasises the importance of this continuous supply. It helps assess the potential impact of power failures, linking higher patient or business risks to the need for more robust and resilient electrical systems.

This system categorises clinical risks from high (A) to low (E) and business risks from high (I) to low (IV), guiding designers in creating cost-effective and appropriate electrical distribution strategies. These strategies, which may include high voltage (HV) and low voltage (LV) networks, are tailored to the specific needs and complexity of each healthcare facility.

HTM 06-01 offers guidance beyond standard BS7671, particularly in the installation of medical IT systems and UPS resilience in critical areas. It's a flexible framework, encouraging collaboration with clinical end-users to identify unique risks in specific areas, ensuring each decision is tailored to the needs of the room or ward. This approach ensures that planning for new facilities is both effective and responsive to the unique challenges of healthcare environments.



Standards

BS7671 Section 710 and HTM 06-01 Standards

BS7671 Section 710 classifies medical rooms into three groups (0, 1, or 2) based on the interaction between medical electrical devices and patients, the risk posed by electrical supply failure, and the room's purpose. Group 2 areas, like operating theatres and critical care units, are identified as the highest risk in terms of patient safety during power failures and demand the most stringent electrical safety measures.

Key requirements for Group 2 areas include the installation of a medical IT power system (IPS) for critical medical equipment and systems. This includes life support and surgical applications. Additionally, these areas must have a power source capable of switching within 0.5 seconds in case of main supply loss, ensuring uninterrupted functioning of vital equipment like surgical lights and life-support systems.

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Lary-



2017 edition





Medical IT Systems

What is a Medical IT System?

A medical IT system is the standard-compliant term for an unearthed system used within a healthcare installation. The Medical IT system is fundamental in providing a safe power supply in Group 2 medical locations.

The medical IT system provides continuity of supply in the event of the first earth fault while reducing the risk to medical electrical devices that are connected to the patient from presenting a shock hazard should a device develop an electrical fault.

How a Medical IT System Supports Your Hospital

A medical IT system provides resilience and a safe supply of power to group 2 medical locations.

The benefits of this system to your hospital include:

- Continuity and operational availability of medical electrical equipment
- Eliminating interruptions to the power supply in the event of a first insulation fault
- Patient and staff protection as fault currents are reduced to a non-critical level

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Modular vs Bespoke Medical IT **Systems**

Modular and bespoke medical IT systems provide different solutions which should be considered when designing your Group 2 medical location.

A modular medical IT system is a two-part, cost-effective solution designed to optimise a small footprint, comprising a standard panel size with installed monitoring technology and a separate transformer housing.

A bespoke medical IT system can be designed to fit the installation requirements incorporating additional technology as required. This system is a suitable solution when there is limited space for TN distribution boards. All technology is installed within one panel, which can accommodate all transformer sizes tailored to project requirements.



ATICS[®] Changeover Device **Further Resilience For Your** Hospital

Purpose-designed for medical applications, ATICS® is an integrated automatic power changeover solution incorporating permanent self-testing. It is independently certified by TÜV SÜD to Safety Integrity Level (SIL) Level 2.

The ATICS® can be incorporated into a Bender medical IT system without taking up extra space in your plant room. ATICS® allows medical IT systems to be supplied from two diverse sources, removing the single point of failure and increasing safety. In the event of power loss to your primary supply, the ATICS® switches over in 0.5 seconds to a secondary supply, maintaining power to the critical medical sockets.



Engineered Solutions Glass-Fibre Reinforced Polyester (GRP) Enclosures

As hospitals expand, the requirements for power within Group 2 medical locations increase, and as a result, new equipment is often installed in congested locations where maintenance clearances and environmental conditions are compromised.

When space is at a premium within hospitals, engineered solutions can be utilised to house critical power systems within GRP enclosures.

GRPs provide a suitable storage solution for electrical infrastructure when hospital areas are at capacity. Configurations include mounting to a steel frame on a rooftop or at ground level on a concrete base.

Compared to a traditional plant room, a GRP enclosure provides a cost-effective alternative, with reduced site disruption and fast lead times due to the off-site manufacture.

Uninterruptible Power Supply (UPS)

A secondary power supply is critical to ensuring that patient safety is maintained in the event of a power failure.

Most hospitals and medical facilities have back-up generators on site, but in medical locations such as Group 2, Category 4&5 - further resilience is required.

These areas require an Uninterruptible Power Supply (UPS unit) to provide critical cover with an immediate changeover to an alternative power source when required.

A UPS provides an emergency power supply to specified loads in the event of mains power failure. UPS provides near-instantaneous protection from input power interruptions, immediately restoring the power with energy stored in batteries.

UPS Configurations to Suit Your Requirements

There are many ways to configure a UPS system, to ensure the highest level of resilience and protection is achieved. Bender can advise you on the optimum format and configuration to meet your requirements and conform to regulations and industry standards.

The most resilient supply configuration is an N+N (Dual Supply philosophy), this allows for medical IT systems to incorporate the ATICS ® and allows for diverse supply routes to all medical IT systems within the building.

Each UPS is sized to supply the full load, but in normal operation is only working at 50% load, achieving higher values of efficiency. An N+N supply philosophy is prescribed in HTM06 01:2017.

Bender would recommend the use of ATICS®, medical IT systems, with a N+N UPS system to provide you with the highest possible level of resilience.

Modular UPS

With the ever-changing needs for power protection, it is impossible to predict future requirements, Bender offers a comprehensive range of modular UPS solutions that ensure the full level of power protection you need, and the flexibility to increase the protection without having to re-design or substantially change the infrastructure.

Modular UPS units allow you to scale and grow protection as the demand for your requirement grows:

- Flexible and bespoke
- Highly efficient
- Space saving
- Less downtime

Residual Current Monitoring

Residual Current Monitoring (RCM) for Hospitals

In hospitals, both critical and non-critical circuits are essential for the smooth operation of wards and departments.

While critical circuits, connected to patient equipment, are often fully monitored as per HTM standards, non-critical circuits are just as vital. These support everyday essentials like general ward areas, computers, and systems including lighting and ventilation.

However, they often lack continuous monitoring, leaving them unprotected from faults. This lack of oversight can lead to disruptions, increased costs, maintenance challenges, and lost revenue due to clinical downtime. Without regular testing, it's also challenging to demonstrate due diligence in electrical safety.

Bender's RCM technology provides you with real-time insights into developing issues within your electrical circuits, helping prevent faults from escalating and ensuring uninterrupted system operability.

Enhancing Infrastructure with Continuous Monitoring

With Bender RCM, IMD, and Powerscout® technology, your hospital can significantly reduce the cost and disruption associated with periodic inspections as outlined in BS7671:2018 Part 6.

Continuous monitoring and reporting not only comply with regulations but also eliminate the need for the disruptive five-year disconnection test. This ongoing monitoring, especially for TNS circuits, offers an efficient, cost-saving alternative to traditional testing methods. With Bender's technology, you'll get early warnings of faults, reducing the risk of unexpected power loss or fire, and negating the need for future disconnections for testing purposes.

Seamless Integration and Benefits of Combined Medical IT with RCM

Bender RCM can be seamlessly integrated into existing TNS circuits within Medical IT systems, offering a space-efficient, fully monitored electrical distribution solution. This can be retrofitted into existing distribution boards, offering benefits such as:

- 24/7 visibility of electrical infrastructure
- Increased lifespan of ageing systems
- Reduced downtime and disruption
- Early detection of insulation faults
- Detailed condition reports
- · Lower risk of fire or electrical shock
- Quicker repair times

RCMS460

Power Quality & Powerscout

Optimising Electrical Infrastructure with Power Quality Devices

Incorporating Bender power quality (PEMs) into your medical IT systems provides additional insights for estate teams and energy managers. These systems monitor electrical values like voltage, current, frequency, and energy use, and can be connected to building management systems for remote monitoring. This helps in proactive energy management and monitoring, ensuring the safe and secure operation of your hospital's electrical installation, with risks like overload or fluctuating energy consumption being effectively managed.





Powerscout® Data Management and Analytics Tool

Powerscout[®] is an advanced software tool designed for effective data management, analytics, and visualisation. It integrates data from Bender RCM, PEM, IPS, UPS, IMDs, and third-party devices, enabling early malfunction detection.

Ideal for healthcare facilities, it enables proactive maintenance and helps prevent unexpected downtime. Powerscout[®] continually gathers data, offering tailored reports on residual currents and insulation resistances, and supports non-disruptive measuring. It integrates with Bender's power quality tools to provide detailed energy consumption data, assisting in energy-saving strategies and informed investment decisions towards achieving net zero targets. Powerscout[®] also helps maintain compliance by monitoring harmonics and other power quality parameters.

Theatre Control Panels

COMTRAXX[®] CP9 Intuitive **Theatre Control**

In operating theatres fast detection of critical operating conditions is vital to prevent shutdown and prevent risk of harm to patients.

The alarm indicator and operator panels of the COMTRAXX® CP9 range provide an optimum overview of connected systems. It delivers alerts quickly in the event of a fault occurring and ensures convenient control of the operating theatre.

Available in a variety of colours and display sizes; 7", 15.6" and 24". CP9 can be customised to meet the needs of end users and is suitable in newly configurable systems or existing installations.

The CP9 provides monitoring, operation and display of:

- Medical IT & UPS & Battery Back Up Power Systems
- Medical Gas & AGSS Alarm Status
- Ventilation, Ultra Clean Ventilation & Building Management Systems
- Fire Alarm Systems
- OR General & Surgical Lighting Control
- In Use Sign Control

Advancing Surgical Procedures

CP9 technology is approved for use in UK and European hospitals and has advanced surgical practices in leading private and NHS trusts. In addition to operating theatres, it can be used in other areas such as ICU/HDU/CCU where medical electrical equipment is connected to a patient.

Benefits

- Intuitive interaction for straightforward use
- Slim design to fit in theatre walls
- All functions are easy to control
- Easy to clean and disinfect
- Remote access eliminates shut-down
- Compliant with HTM 03-01 regulations
- Connects to all monitoring systems
- Futureproof software updates
- Simple installation & training



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Picture Archiving & Communications System (PACS Console)

The PACS Console is modular and customisable for any theatre configuration.

This wall-mount solution is suitable for operating rooms where high resolution imaging is required. It provides an ultra-HD image display and links to an operating light camera. The PACS can also be utilised to view medical files and X-rays.

The toughened screen is made with an anti-reflective and anti-fingerprint coating. The screen is IP65 rated and dustproof to increase infection control in the surgical area.

The intuitive design incorporates unique cooling technology to ensure the panel remains at an optimal temperature. It is silent in operation and turbulence-free due to the absence of fans.

Available in a variety of sizes from 21" to 55" in either landscape or portrait, with a choice of two colours, with a rugged foldable keyboard or touchscreen control option.



Q-Flow™ LED Operating Lights Designed with Surgeons in Mind

In theatres, effective operating lighting is a vital tool in aiding surgical procedures.

The award-winning Merivaara Q-Flow[™] LED operating lights were developed with theatre staff and surgeons in mind. The circular shape of the Q-Flow[™] theatre lighting optimises airflow within the operating area, reducing the risk of surgical site infections.

Q-Flow[™] operating lights enhance illuminance and improve efficiency in operating theatres by reducing staff fatigue, heat output and energy consumption.

Q-Flow[™] surgical lighting delivers colour rendering with Ra, R9, and R13 values of 98, enabling surgeons to visualise tissue and vascular colours more easily. R13 is particularly important in plastic surgery to enhance skin detail.

The range of Q-Flow[™] surgical lights offers an illuminance intensity of up to 160,000 lux. The lights deliver a deep column of light and have three colour temperature options, providing superior white light or green ambilite, for easy viewing of the surgical site, screens, and monitors.



A Range of Surgical Lights to Suit Your Operating Theatre

The choice of lighting often depends on the personal experience of surgeons and clinical teams, which is why we offer a range of theatre lights with specialised features to suit various surgical procedures.

Q-Flow[™] Fluent, this model of Q-Flow[™] operating theatre lights, is suitable for day surgery and elective procedures, providing excellent optical performance and sterile surgeon control features, such as brightness or field size.

Q-Flow[™] Vision, the mid-range model surgical light, is ideal for a broad range of surgeries and can be integrated with a full HD camera delivering video streaming for teaching applications.

Q-Flow[™] Intelligent is the highest specification operating theatre light, suited for complex surgical procedures. Features include an intuitive sterile handle (Intueri™) delivering control and adjustability of brightness and light field, Dynamic Obstacle Compensation (DOC[™]) shadow-reducing technology to prevent light from being diminished or obstructed to the surgical area. The Q-Flow™ Intelligent can also have a full HD camera integrated.

Benefits

- Reduces stress and fatigue with various lighting settings
- Eliminates shadows from the surgical area
- Seamless control of light and camera through a single interface
- Lightweight and easy to manoeuvre light heads and arms
- Designed and tested for an ultra-clean ventilated environment



Bender offer a range of examination and minor procedure lights, scan the QR code to find out more

Operating Tables

Operating Tables for all Surgical Procedures

Highly adjustable, versatile operating tables are a vital tool in modern operating theatres, to accommodate various surgical procedures and patients.

Merivaara operating tables are designed to improve ergonomics for theatre staff and patients whilst meeting the demanding workflow requirements.



Smarter Practico

The Smarter Practico is a mobile electromechanical operating table, modular in construction; it is the perfect table for elective, day procedures.

The table height varies from 540 mm and extends to 1,143 mm making it one of the lowest height operating tables on the market. A lower table height is practical for senior patients and enhances the surgeon's ability to work comfortably.

With a 400 kg lifting capacity, the table is extremely adaptable with height adjustability, tilt angle, Trendelenburg angle, and angles for both the back and leg sections.

Grand Promerix

The Grand Promerix is a heavy-duty, electrohydraulic operating table for demanding surgeries. This sturdy, versatile table is among the most technically advanced in the industry. With a lifting capacity of 490 kg, Promerix has a modular tabletop and a wide range of accessories for all patient sizes and procedures.

Intended for major surgeries and includes a range of options for specialised procedures, including divided leg sections, gynaecologic sections, a shoulder arthroscopy section and a variety of headrests. It is also suitable for robotic surgery and imaging



Clinical Pendants for Improving the Theatre Environment

Clinical pendants create an efficient patient environment by delivering safe, streamlined access to medical equipment and gases, improving space, and accessibility whilst reducing hazards within the area.

Merivaara Solido[™] pendants are Class 2 B medical devices, in accordance with the Medical Device Directive 93/42 ECC. The pendants can be wall or ceiling-mounted, depending on the requirements of the hospital area with various electrical sockets, gas and data outlets available.

Solido[™] Pendants for Operating Theatres

Merivaara offers a variety of horizontal and vertical pendants, designed specifically to facilitate clinical procedures in the operating room.

Solido[™] pendants provide a safe supply of medical gases, data and electrical sockets for medical equipment required during surgical operations.

The pendants provide maximum reliability with a braking system to ensure anticollision and maximum stability, available with fixed or adjustable height in various configurations.

Solido[™] Pendants for Critical Care Areas

Solido[™] pendants are durable and easy to install, ensuring minimum maintenance and limited disruption for intensive care teams.

Available in a variety of configurations. Solido[™] pendants provide a centralised supply of equipment for treatment in critical care areas and are easy to manoeuvre to aid nursing practices.

The pendants are available with direct and indirect lighting options to offer patient comfort and are fully customisable to suite the requirements of intensive care environments.

OpenOR™

OpenOR[™] Integrating your Operating Theatre

OpenOR[™] is a compact, vendor-neutral, audio and visual system which integrates operating room cameras, monitors, data and other devices. OpenOR[™] enables flexible video routing between sources and displays and allows procedures to be viewed and streamed outside the operating theatre, enabling clinicians and students to consult and view surgeries from other locations.

Integrated theatre solutions provide students in leading teaching hospitals the opportunity to view surgical procedures from training facilities. This reduces operating theatre traffic, minimising the risk of surgical site infections, without compromising on learning.



A Flexible System with Straightforward Updates

OpenOR[™] requires no infrastructure or hardware changes. Software updates are included as part of ongoing technical support and maintenance. The medical monitors supplied are all ultra-high definition and do not need upgrading when the MIS camera resolution surpasses HD resolution. OpenOR[™] will also integrate with any endoscopic/ arthroscopic stack system.

Benefits

- Intuitive and streamlined interface
- Management of camera, image, lights and operating table
- Compact and easy to install
- Flexible modules can be added retrospectively
- Medically certified IP transmission technology
- No delay in image transmission
- Plug-and-play function for connecting surgical instruments

Service & Maintenance

Healthcare Maintenance and Service Excellence with Bender

Bender stands at the forefront of healthcare maintenance, boasting a team of expert engineers experienced in both Bender and third-party equipment. Strategically located across the UK and Ireland, our engineers ensure swift, responsive call-out, maintenance, and repair services, keeping your healthcare operations running smoothly.









Why Prioritise Service?

Regular servicing and maintenance are not just best practices; they're regulatory necessities. Under BS7671:2018, periodic testing and inspection of Medical IT Power systems, including IPS and UPS equipment, are mandatory. These inspections, recommended at 12-month intervals for IPS and 6 months for UPS as per Electrical services HTM 06-01, are vital. They guarantee that your equipment is not only reliable but also operating at peak efficiency, reducing the risk of failure and safeguarding both staff and patients.

Bender Pulse: Energy made smart by Bender

Bender Pulse transforms your electrical infrastructure into a smart, safe, and sustainable system. It's the key to unlocking the potential of smart hospitals, where managed energy is critical. Our solution ensures your hospital's electrical infrastructure is efficient, intelligent, and resilient.

Facilitate a connected, monitored, and managed energy approach with Bender.

With a Bender Pulse service contract, you benefit from:

- Electrical condition monitoring & control in all areas.
- Remote maintenance with 24/7, real-time monitoring and proactive support.
- Minimised equipment failures and downtime.
- Investment decisions driven by real-time data.
- Digital integration with machines and patient systems.
- Becoming an energy prosumer, contributing to a sustainable future.

Smart Infrastructure for a Greener Tomorrow

Our focus extends beyond immediate operational efficiency. With Bender, you contribute to more energy efficient infrastructure, aligning with carbon net zero goals. We empower your hospital to not only meet today's healthcare demands but also pave the way for a sustainable, environmentally conscious future.

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Why Choose Bender?

An established world leader in electrical safety

VALUE

Our products are competitively priced - delivering value for money and reduced life cycle costs.

QUALITY

As an OEM we are confident in the quality of our products and offer industry leading warranties. Approvals include UL, Lloyds, TUV, Germanischer Lloyd, cULus, Network Rail and Def Stan.

CUSTOMER SERVICE

We value and respect our customers and strive to deliver a first class experience every time.

TECHNICAL SUPPORT

Our nationwide network of factory trained engineers delivers unrivalled technical support 24 hours a day.

PRODUCT RANGE

We produce a range of high quality engineered solutions for diverse market sectors.

DELIVERY

We keep our promises and deliver on time.

INNOVATION

Since inventing the insulation monitor we now hold multiple patents and continue to be recognised as a world leader in electrical safety products.

FINANCIAL STABILITY

High risk projects demand low risk suppliers - Bender's solid financial position reduces risk.

INTERNATIONAL

A family company with a global presence, Bender has offices throughout the world.

COMPETENCE

We actively participate in the development of international standards.

OUR PEOPLE

Friendly, dedicated and knowledgeable - our enthusiastic team are always willing to help.

PHILOSOPHY

We sell products that don't come back to people that do!

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