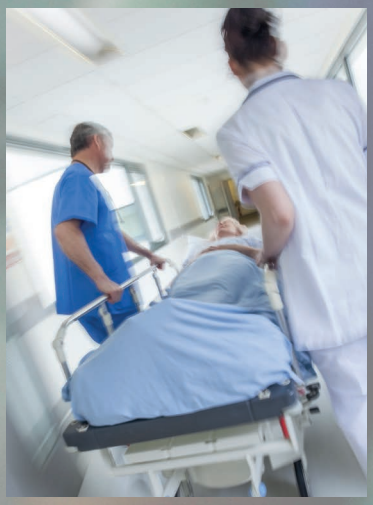
BENDER
The Power in Electrical Safety©

Product overview

Alarm indicator, operator and display panels



Innovative operating concepts for safe power supply in all medical locations

Despite all technology that is necessary in medical locations like operating theatres and intensive care units, the main focus of the medical personnel must be the care of the patients and their well-being. This requires an operation that is as intuitive and simple as possible. Bender panels offer this by integrating all technical subsections. Like that, they become the technical monitoring centre of the room, which provides every user with exactly the information he needs.

Centralised room monitoring of all technical components
There is a wide range of possible components. Alarm indicator and operator panels primarily complement safe power supply. They offer the medical personnel quick access to all necessary information, display messages and indicate alarms. Alarm indicator and operator panels of other important supply units are also necessary, e.g. those for medical gases.

Also any other room installation like blinds, ventilation and room temperature needs to be operated.
Another essential aspect are communication installations. Additionally, all other necessary appliances can be integrated, for example for the operating theatre table or the operating theatre light. Integrating all the technology in one panel simplifies installation, operation and, moreover, saves space.

Individual adjustment for reliable use
Not only the functions of the panel but also the alarm messages of the various subsections can be displayed on a single panel, individually adjustable. They can be specifically configured according to the given circumstances, therefore become easier to understand and the reaction to them is more reliable: patients as well as personnel benefit from this.

Contents


Betrieb
System
Settings
ALARM
Übersicht
Raum
Licht
Lüftung & Klima
Preset aktivieren
OP Standard
OP Septischer Betrieb
OP Kleinkind
Dr. Karlsson
Aktivieren
System OK
20:52
30.7.2012
Jimi Hendrix – Can You See me
1:42
21:11
21:12
20:58

Touch Control Panel – TCP
the technical monitoring centre

Alarm indicator and operator panels of TCP series

Indication, monitoring, operation

- IT systems
- Supply systems for medical gases
- Battery-powered UPS
  Air conditioning and ventilation systems
- Room lighting
- Communication systems
- Operating theatre tables

as well as other installations of various subsections.

Each panel is individually manufactured and tailored to the requirements of the user

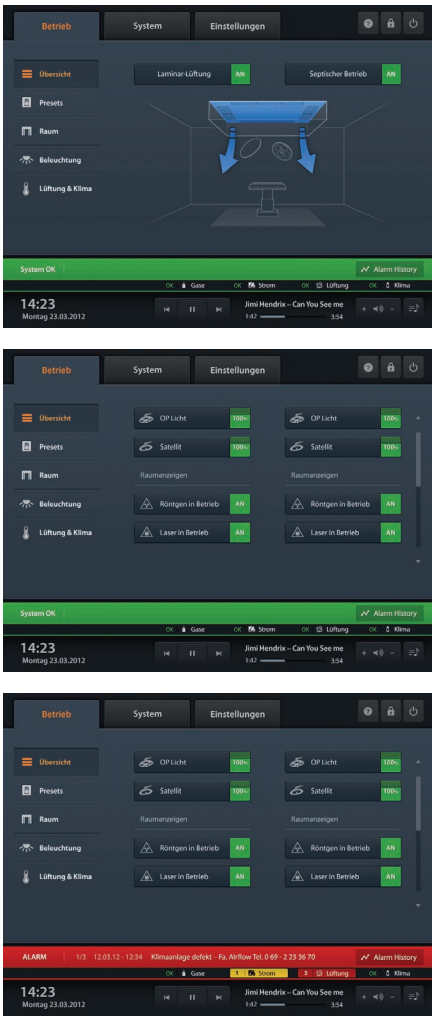
At the interface between humans and machines, alarm indicator and operator panels play a key role. Their task consists in converting information from the system to comprehensible operating and handling instructions. This especially applies to critical operating situations. The TCP Touch Control Panel offers solutions to the user, which comply with the requirements of modern medical equipment.

Possible applications:

- Indication and visualisation of system conditions, warning and alarm messages
- Centralised monitoring and parameterisation
- Release of visual and audible warning messages
- Communication with building management systems via: PROFIBUS, KNX®, LONWORKS, SERCOS interface, InterBus, Modbus, Ethernet/IP, CC-Link, DeviceNet, BACnet, PROFINET

Convincing advantages

- User-friendly, touch-sensitive monitoring system
- Particularly easy to operate
- Additional information for medical and technical personnel
- Clear menu structure with self-explanatory, interactive images
- Clearly marked safety functions
- Silent due to operation without fan
- High-quality representation with excellent contrast, high resolution and wide viewing angle
- Possibility of graphical integration of building plans or status display in photo quality
- Easy integration of external subsections like operating theatre table controls and intercom systems with front foil
- Sealed, highly transparent or matted antibacterial foil surface or glass

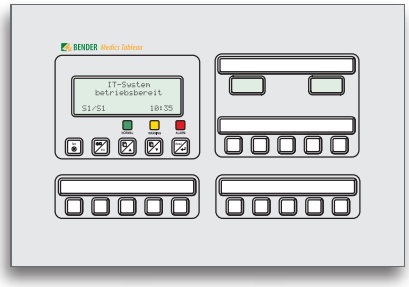


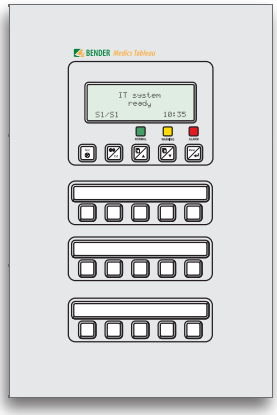
The integration of all technical subsections in one panel forms a "technical monitoring centre" in the respective room

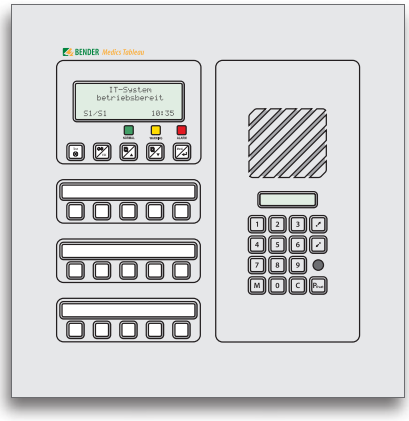
TM panels
individual plain text messages

TM panels offer significant support to medical personnel during their work in hospitals

Alarm indicator and operator panel TM800







Alarm indicator and operator panels of TM series issue operating and alarm messages as plain text message with individual, multiline texts over an LC display. In principle, every alarm can be linked to an individual text message via the digital inputs/outputs or the interfaces.

The text display consists of four lines of 20 characters (8 mm high), whereby the first three lines are used to indicate the alarm texts and the fourth line is used to display status messages (e.g. date, time, number of alarm messages). Via the freely accessible PC software TMK-Set an individual function can be assigned to each element of a backlit key pad , like

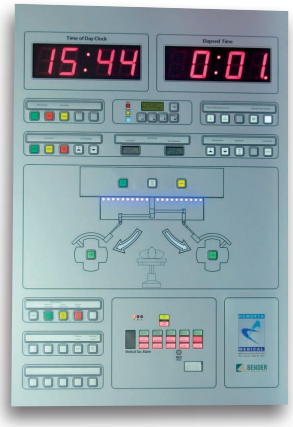
- Switch
- Button/Key
- LED
- Acoustic message
- Text message

The link between the element and the appropriate input, output or interface is also carried out via the PC software TMK-Set. Thereby, an essential advantage of the TM panels becomes clear: In case of subsequent modifications of the functions, the hardware does not need to be changed.

Your benefits

- Clear messages due to big text display with selectable additional text for personnel support
- Connection of other subsections via digital inputs/outputs with LED status display, relay outputs, optocoupler outputs, connection to bus systems
- Up to 120 freely configurable backlit push-buttons
- History memory for 1000 alarm and error messages
- Programming of panels via internal USB interface
- Sealed, easy-to-clean foil surface
- Protection class up to max. IP 54
- Highly transparent or matted antibacterial foil surface
- Labelling and colour of lamp caps exchangeable on site

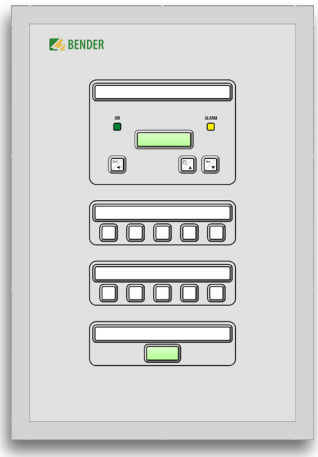
FM panels
for all applications in medical locations

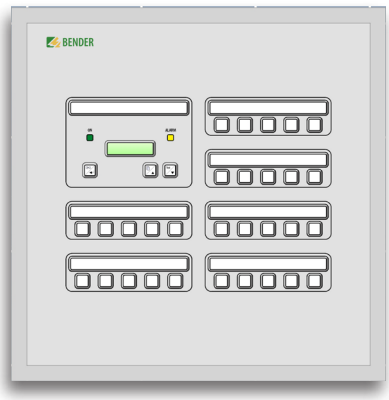


FM series w/digital timer and clock

There are areas in medical locations where it is not possible to work with less information but significantly less switching and adjustment options are required.

This does not mean that the named advantages like text display or front foil are not provided. For these applications, smaller panels are available. Such standard solutions are suited when all messages of the IT systems or information regarding the UPS should be displayed.





Your benefits:

- Messages via text display
- Freely configurable backlit push-button modules
- Text memory for up to 200 messages
- History memory for 250 alarm and error messages
- Programming of panels via USB interface
- Sealed, easy-to-clean foil surface
- Protection class up to max. IP 54
- Non-reflecting, antibacterial foil surface
- Labelling and colour of lamp caps exchangeable on site
- Linked to central collection of all alarm and error messages via OPC server (optional)
- Buttons for indication of additional texts, alarm LED test, acknowledgement of acoustic messages, read-out of the history memory
- Integration of external subsections behind the foil

Alarm indicator and test combinations MK
Display, indication, operation

Small panels are used in patient rooms

Alarm indicator and test combination MK2430

Alarm indicator and test combination MK800

Small panels are mainly used in intensive care units, preparation rooms and recovery rooms. Simultaneously to the information at the nurses desk, the medical personnel immediately receives a notification when there is a power supply failure. Thus, they can immediately respond to the disruption.

For indication of more information on the display, for example messages from a UPS system, only much larger panels are available. The remote alarm indicators of the MK series can be included in the bus technology.

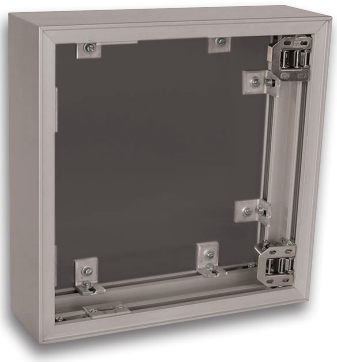
Your benefits

- Indication of operating status, warning and alarm messages from Bender monitoring systems
- Backlit plain LC text display (4 x 20 characters)
- Additional text can be displayed
- LEDs in traffic light colours: 3 LEDs for additional differentiation of warning and alarm messages
- Standard texts for messages selectable in 21 national languages
- Up to 1000 freely programmable alarm texts
- Easy parameterisation with a PC (USB interface), via the device menu or the BMS interface
- History memory with real-time clock for storing 1000 warning and alarm messages
- 12-16 digital inputs (option)
- 1 programmable relay (option)
- Five large operating buttons
- Versions suitable for flush-mounting and surface-mounting as well as door mounting and cavity wall mounting
- Non-reflecting, multicoloured foil

The right enclosure choice

Enclosure version UPE

Enclosure version UPB



Enclosure version AP

A panel must be fixed and installed, and form a harmonious appearance with the wall surface. It is essential to choose a suited enclosure in order to achieve this.

The enclosures are not only available with bezel frame (UPB type). They can also be delivered with a frame that is flush with the wall (UPE type) or as surface-mounting enclosure (AP type). The flush-mounted enclosure of the UPE series (mounting frames) and UPB (bezel frames) are produced with inherently stable synthetic material (low flammability, self-extinguishing). The standard mounting depth is 120 mm. When mounting TCP panels, a mounting depth of 150 mm is necessary. Flatter versions are available on request.

Due to thermal conductivity, aluminium is used for the manufacturing of the frames of AP and TCP-UP versions. A robust hinge (opening angle up to 120°) connects the frame and the front plate.

Enclosure dimensions

There are several dimensions for the four panels that have to be considered. The bezel frame version is used most. At least four dimensions are relevant:

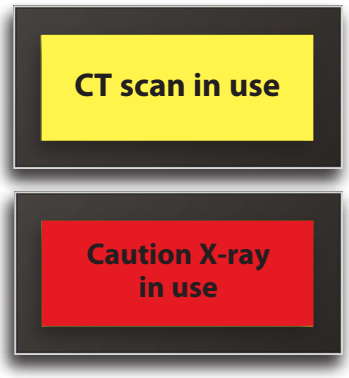
- Dimensions of the bezel frame
- Dimensions of the mounting frame
- Dimensions of the enclosure
- Dimensions of the wall cutout

The dimensions of the wall cutout is the first thing to be asked on site. With the below-mentioned eight most important panel sizes the necessary dimensions for the major part of the project can be determined in due time.

Table of enclosure dimensions

Type	Dimensions of UPB bezel frame (WxH) mm	Dimensions of UPE mounting frame (WxH) mm	Dimensions of the enclosure (WxH) mm	Dimensions of wall cutout (WxH) mm
UPB-1	333x333	297x297	307x307	310x310
AP-1			300x300	
UPB-2	483x483	447x447	457x457	460x460
AP-2			450x450	
UPB-3	333x483	297x447	307x457	310x460
AP-3			300x450	
UPB-4	483x483	447x447	457x457	460x460
AP-4			450x450	
UPB-5	483x633	447x597	457x607	460x610
AP-5			450x600	
UPB-6	633x483	597x447	607x457	610x460
AP-6			600x450	
UPB-7	633x633	597x597	607x607	610x610
AP-7			600x600	
UPB-8	633x783	597x757	607x757	610x760
AP-8			600x750	

Display panels AT series



Display panels

Transparent display panels to inform about room occupancy or room usage. Especially in medical locations, display panels are indispensable. They offer information, for example, regarding the use of laser and x-ray machines in order to prevent possible hazards.

- on room occupancy
- on room usage
- on machines in use

Your benefits

- Protection class depending on selected version, i.e. IP 2…IP 54
- Optional cable gland
- Front plate made of transparent or coloured acrylic glass without visible screws
- Individual texts possible
- Various screen colours available (yellow, red, white).
- LED lamps

Mounting versions

Flush-mounting enclosure with bezel frame

Enclosure:
WxHxD= 307 mm x 157 mm x 87 mm

Bezel frame:
WxHxD= 333 mm x 183 mm x 90 mm

Surface-mounting enclosure

Enclosure:
WxHxD= 300 mm x 150 mm x 60 mm

Flush-mounting enclosure for wall mounting

Enclosure:
WxHxD= 240 mm x 140 mm x 90 mm

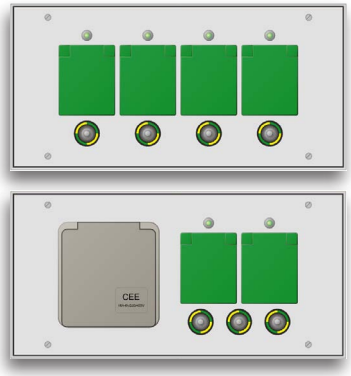
Front plate:
WxHxD= 255 mm x150 mm x 3 mm

Flush-mounting for cavity wall mounting

Enclosure:
WxHxD= 240 mm x 140 mm x 90 mm

Front plate:
WxHxD= 255 mm x 155 mm x 3 mm

Socket-outlet panels ST series



Socket-outlet panels ST series

The socket-outlet is a supply point for the electrical installation that has to provide information to the medical and technical personnel

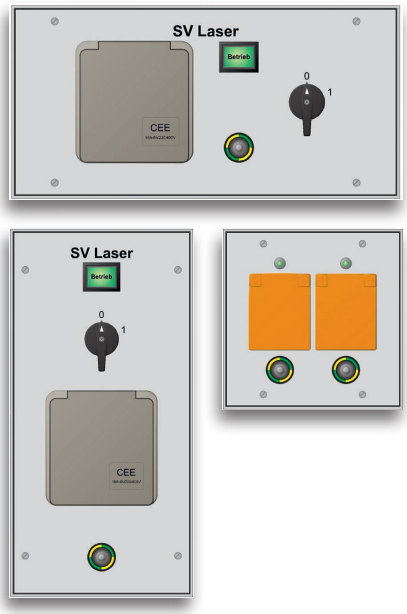
Socket-outlet panels minimise the installation effort and support the work of the medical personnel, since they provide important information to the medical and technical personnel. For example, socket-outlets have to have contrasting colours for:

- Identification of the upstream Group 2 distribution board
- Identification of the power circuit
- Identification of the power supply class

In locations where medical electrical devices/ME systems are used, the supplementary equipotential bonding has to be available and easy to use. This is not an issue if adequate plug connectors are available, since the panel of the ST series complies with the requirements.

The socket-outlet panel offers various solutions for a proper installation:

- The supply line cross section to the socket-outlet connection is always in the range between 4…6 mm², a cross section that cannot be connected to a standard socket-outlet: An adequate terminal board in the socket-outlet panel solves the problem.
- Due to availability, 2, 3 or 4 socket-outlets installed close together shall be supplied by two different electrical circuits: The terminal board in the UP cabinet makes it possible.
- Next to the socket-outlets for arbitrary medical electrical devices there shall be installed socket-outlets for medical electrical systems and these shall be supplied by a separate final circuit: The proper terminal board in the UP cabinet offers numerous options.
- The weakest current source only allows one (1) socket-outlet per final circuit: No problem, the UP cabinet conventiently allows various supply lines.
- Medical electrical devices with an output of more than 5 kVA require a coded, i.e. different plugging; power supply that is switchable.



Any other information regarding power supply can be integrated

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