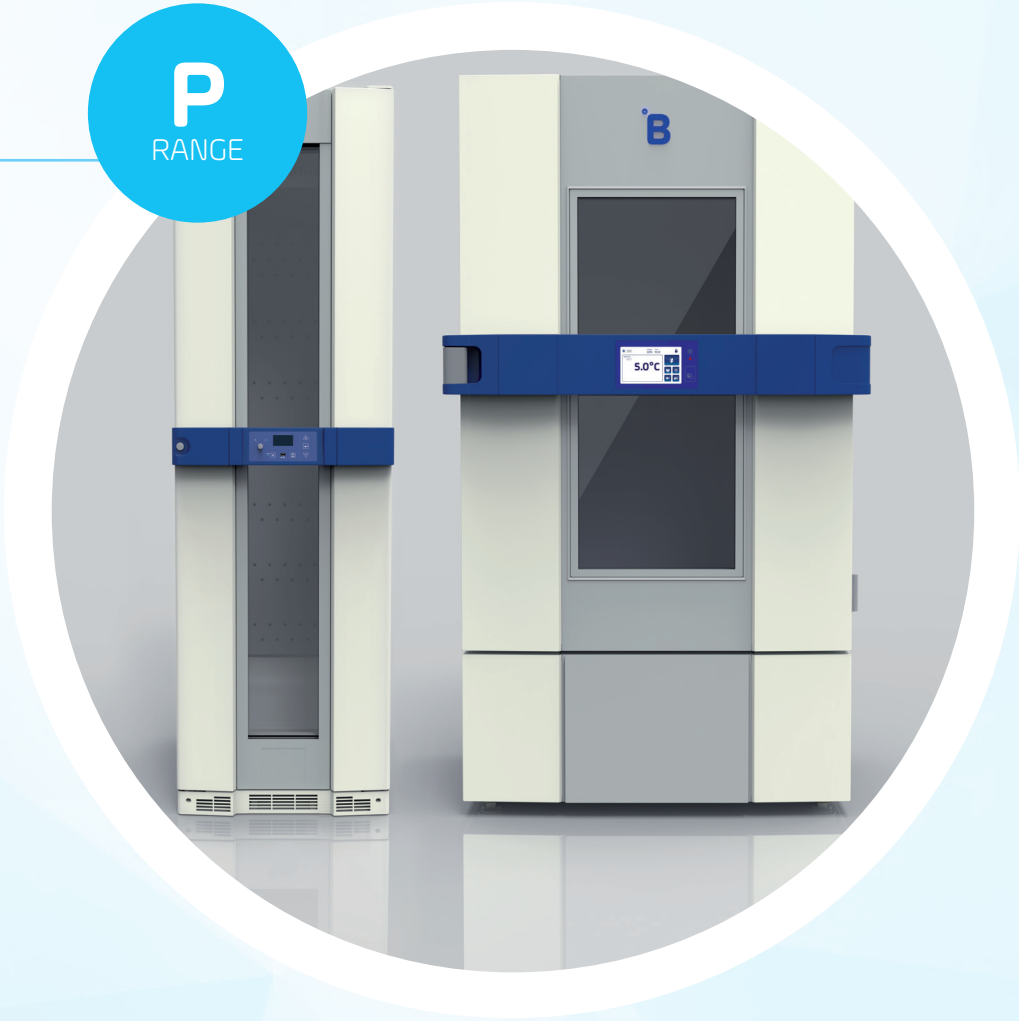**P**
RANGE

# Pharmacy Refrigerators

## B Medical Systems | P Range

For the safe storage of pharmaceuticals, medications or live virus vaccines being subject to cold chain and temperature sensitivity
**> according to DIN 58345 I ÖNORM K 2040**

**9** MODELS

**+5°C** TEMPERATURE

**52 L > 895 L** VOLUME

**SN** CLIMATE CLASS

**MEDICAL DEVICE** Certified 93/42/EEC

°**B** | medical systems

**SAVING LIVES** THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

## Medical Refrigeration

# Safety Standards
# B Medical Systems

**The Safety Standards developed by B Medical Systems** define certain significant technical features of a product. These ensure the safe storage of the preparations as well as setting the highest standards of safety for the user.

| PRECISION LINE | PREMIUM LINE | |
|:---:|:---:|---|
| ● | ● | B Medical Systems Electronics |
| ● |  | B Medical Systems digital display |
|  | ● | B Medical Systems 4,3'' digital color display with capacitive buttons |
|  | ○ | B Medical Systems 7'' full touchscreen display |
| ● |  | Safety door lock (with 2 keys) and key-operated power switch ON/OFF (with 2 keys) |
| ● | ● | Power indicator light and digital temperature indicator (display: 0.1 digits) |
| ● | ● | Controlled fan cooling system for constant temperature and even temperature distribution across the entire refrigerating chamber |
| ● | ● | Automatic switch-off of the evaporator fans when the door opens |
| ● | ● | Self-contained alarm system with integrated battery takes over the alarm function and temperature value measurements in case of system failure for at least 48 hours |
| ● | ● | Acoustic and visual alarm signal in case of temperature alarm and system failure |
| ● | ● | The alarm history function on the electronic stores all the relevant values during a temperature alarm, such as: min., max. and average temperature *[+ alarm duration for Premium Line models]* |
| ● | ● | Remote transmission alarm signal (via potential-free contact) in case of temperature alarm (change-over contact) |
| ● | ● | Safety thermostat prevents dropping of the temperature below +2°C |
| ● | ● | Door opening alarm (visual / acoustic) |
| ● | ● | Designed and tested for climatic class SN (ambient temperature range +10°C to +32°C) |
|  | ● | Interior made from stainless steel |
| ● | ● | Internal LED lighting |
| ● | ● | Additional remote transmission alarm signal (via potential-free contact) in case of system failure (change-over contact) |
|  | ● | Smooth castors for optimum flexibility of movement |
|  | ○ | Ambient temperature sensor |
| ○ | ● | °B Connected - Universal software for the monitoring of refrigeration devices, including the acquisition, recording and visualization of temperature data |
| ○ |  | DCU (Data Communication Unit) - Hardware module monitoring all operating conditions and passing them through to a central database – via local network (in combination with °B Connected) |
|  | ● | Ethernet interface for the visualization of all operating and control functions (hardware and software settings) via °B Connected monitoring software on a peripheral device (computer) |

● Standard  ○ Optional

# Pharmacy Refrigerators

## B Medical Systems | P Range

**Pharmacy Refrigerators for the safe storage of pharmaceuticals, medications or live virus vaccines, at cold temperatures between +4°C and +15°C** with multiple controls and warning safety features developed as a result of over 35 years of expertise in refrigeration technology.

**9** models • Volume **52 > 895 L** • Set temperature **+5°C** • Climate class **SN** • According to **DIN 58345 | ÖNORM K 2040**

In conformity with national and international guidelines, regulations for Medical Devices offering reliability, efficiency and safety at an optimal price.

**MODELS P 55-130-290-380 & PF 260 | PRECISION LINE**

**MODELS P 400-500-700-900 | PREMIUM LINE**

### ○ Integrated multi-function monitoring electronics

Integrated B Medical Systems multi-function electronics; with easy access in the door level; offers alarms, central alarm system, set point security, battery backup, full display and many other control features; compatible with °B Connected monitored solution for data monitoring and recording.
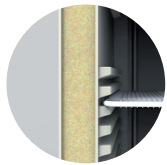
### ○ Lifetime warranty corrosion-free cabinet

• One piece material cabinet with a lifetime warranty for zero corrosion, highest quality polypropylene for better insulation and no sharp edges to provide easier maintenance and cleaning

• Smart ergonomy - Easier and safer handling because of heavier components placed at the bottom

### ○ High storage capacity

High storage per square meter in terms of net volume, with a very versatile inner volume utility due to multiple user friendly rails allowing modularity.
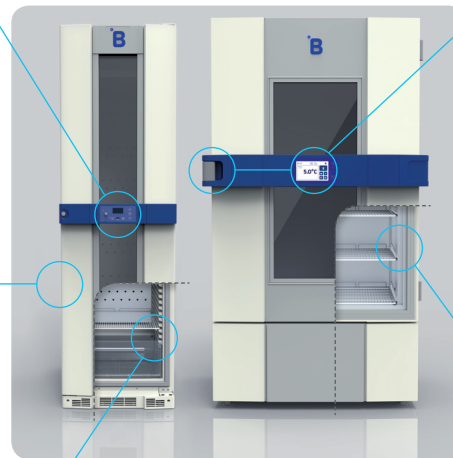
### ○ Exclusive integrated electronics handle bar (Patent pending)

All functionalities are easily accessible:

• Digital control with full functionalities - Standard multifunction digital sensitive 4.3'' panel integrated at optimal level in the door handle with full commands and connections, or optional full 7'' touchscreen with pre-installed connection allowing exclusive °B Connected monitoring functionalities

• Open/close - Heavy duty door lock mechanism

### ○ High quality materials

New high quality coating, certified medical devices quality and antibacterial, high quality steel for better longevity and easy hygiene control.

### ○ Versatile modularity

Excellent storage capacity and modularity - Large choice of shelves and drawers offering modularity for every need.

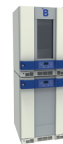### ○ Highest insulation value (organic glass door)

4-layer (Precision Line) and 5-layer (Premium Line) PMMA organic glass offering highest insulation, combined with reduced weight reducing efforts to close door and constraints on hinges, offering better longevity.

**SAVING LIVES** THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

# P RANGE
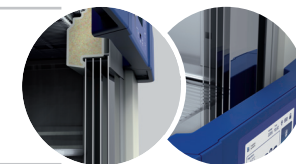
## Technical Data
## General features

| | P 55 | P 130 | P 290 | P 380 | PF 260 | Refrigerator & Freezer combined |
|---|---|---|---|---|---|---|
| *Gross / Net volume (l)* | 52 / 45 | 121 / 106 | 297 / 269 | 362 / 329 | R l 121 / 106 | F l 121 / 106 |
| *Set temperature (preset)* | +5°C | | | | | -32°C |
| *Set temperature (setting range)* <br> *can be adjusted in steps of 0.1°C* | +4°C to +15°C | | | | | -32°C to -20°C |
| *Temperature cold / warm alarm limit* | +3°C / +7°C | | | | | -37°C / -27°C |
| *Hold over time (+5°C to +10°C)* | 1 h 15 | 1 h 27 | 59 min. | 54 min. | 1 h 27 | 42 min. |
| *Climate class (ambient temperature range)* | SN (+10°C to +32°C) | | | | | |
| *Defrosting technique* | Natural | | | | | Manua (for freezer)l |
| *Refrigerant type* | R600a | | | | | R290 |
| | | | | | | |
| *External dimensions H x W x D (mm)* | 670 x 495 x 575 | 830 x 595 x 695 | 1670 x 595 x 695 | 1980 x 595 x 695 | 1660 x 595 x 695 | |
| *Inner dimensions H x W x D (mm)* | 470 x 375 x 350 | 630 x 475 x 470 | 1470 x 475 x 470 | 1790 x 475 x 470 | 630 x 475 x 470 | 630 x 475 x 470 |
| *Net weight with standard equipment (kg)* | | | | | | |

| Energy Saver | | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Supply voltage (V)* | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 |
| | *Frequency (Hz)* | 50 / 60 | 60 | 50 / 60 | 60 | 50 / 60 | 60 | 50 / 60 | 60 | 50 / 60 | 60 | 50 / 60 | 60 |
| | *Power (W)* | 42 | 49 | 110 | 86 | 120 | 85 | 121 | 93 | 110 | 86 | 168 | 209 |
| | *Energy consumption (kWh/24h)* | 0.42 / 0.45 | 0.52 | 0.86 / 0.92 | 0.63 | 1.04 / 1.18 | 0.97 | 1.44 / 1.24 | 0.93 | 0.86 / 0.92 | 0.63 | 1.35 / 1.28 | 1.98 |
| | *Heat emission (Kcal/h)* | 12 | 11 | 25 | 20 | 38 | 26 | 37 | 26 | 25 | 20 | 53 | 65 |
| | *Compressor running time (%)* | 32 | 26 | 26 | 27 | 37 | 36 | 36 | 33 | 26 | 27 | 37 | 36 |
| | *Noise level (dB(A))* <br> *(at 1m height & 1m distance)* | 35 / 36 | 37 | 35 / 36 | 38 | 38 / 40 | 39 | 40 | 38 | 35 / 36 | 38 | 45 / 47 | 47 |

All values were measured at +25°C ambient temperature and without load (with inertial mass).
Subject to change without prior notice. Some of the accessories shown in the pictures are optional.

# P RANGE

## Technical Data
## General features

| | P 400 | P 500 | P 700 | P 900 |
|---|---|---|---|---|
| Gross / Net volume (l) | 451 / 384 | 598 / 510 | 747 / 636 | 895 / 763 |
| Set temperature (preset) | +5°C | | | |
| Set temperature (setting range) can be adjusted in steps of 0.1°C | +4°C to +15°C | | | |
| Temperature cold / warm alarm limit | +2°C / +8°C | | | |
| Hold over time (+5°C to +10°C) | | | | |
| Climate class (ambient temperature range) | SN (+10°C to +32°C) | | | |
| Defrosting technique | Natural | | | |
| Refrigerant type | R600a | | | |
| | | | | |
| External dimensions H x W x D (mm) | 1988 x 697 x 1035 | 1988 x 850 x 1035 | 1988 x 982 x 1035 | 1988 x 1140 x 1035 |
| Inner dimensions H x W x D (mm) | | | | |
| Net weight with standard equipment (kg) | | | | |

**Release date** to be confirmed

| | | P 400 | | P 500 | | P 700 | | P 900 | |
|---|---|---|---|---|---|---|---|---|---|
| *Energy Saver* | Supply voltage (V) | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 | 220-240 | 115-127 |
| | Frequency (Hz) | 50 / 60 | 60 | 50 / 60 | 60 | 50 / 60 | 60 | 50 / 60 | 60 |
| | Power (W) | | | | | | | | |
| | Energy consumption (kWh/24h) | | | | | | | | |
| | Heat emission (Kcal/h) | | | | | | | | |
| | Compressor running time (%) | | | | | | | | |
| | Noise level (dB(A)) (at 1m height & 1m distance) | | | | | | | | |

All values were measured at +25°C ambient temperature and without load (with inertial mass).
Subject to change without prior notice. Some of the accessories shown in the pictures are optional.

**SAVING LIVES** THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

# P
## RANGE

## Technical Data
## Specifications

| | | P 55-130 & PF 260 | P 290-380 | P 400-500-700-900 |
|---|---|---|---|---|
| *Regulation sensor*<br>*Precision (from -80°C to +180°C) ± 0.3°C* | | NTC | | |
| *Display sensor*<br>*Precision (from -80°C to +180°C) ± 0.3°C*<br>*in reference body / 100 ml DOW*<br>*corning 200-5CST (Silicon Oil)* | | NTC | | |
| *Accu data / function time of the control panel when system failure* | | 12 V - 2.3 AH / 48h | | |
| *Relative humidity at +32°C* | | ≤ 75% | | |
| | | | | |
| *Door insulation (polyurethane)* | | 80 mm PU with 4-Layer PMMA organic glass | | |
| *Casing insulation (polyurethane)* | | 60 mm PU | | |
| *Material* | *Inner / Outer body* | Polypropylene (copolymer UV) | | |
| | *Inner door* | Polypropylene (copolymer UV) | Aluminium | |
| | *Outer door* | Polypropylene (copolymer UV) | | |
| | *Drawer* | Polycarbonate, transparent | | |
| | *Shelf* | Wire DIN177, PA11 coated | | |
| | | | | |
| *European Medical Device Directive* | | 93 / 42 / EEC, Class I (models: 220-240 V - 50/60 Hz) | | |
| *EMC directive* | | 2014 / 30 / CE (models: 220-240 V - 50/60 Hz) | | |
| *Low voltage directive* | | 2014 / 35 / CE (models: 220-240 V - 50/60 Hz) | | |
| *FDA regulation* | | Class I medical devices acc. to 21CFR Part 864.9700 (models: 115-127 V - 60 Hz) | | |
| *cCSAus certificate* | | Yes (models: 115-127 V - 60 Hz) | | |
| *GMP - Clean room classification* | | Class ISO 6 / EC GMP B | | |

# P RANGE



DRAWER
3 versions:
- top
- with Front Cover
- bottom

WIRE SHELF

ST-SHELF
(STAINLESS STEEL)

## Equipment
### Standard & optional

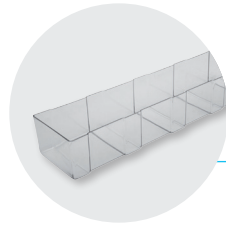| | | P 55 | P 130 | P 290 | P 380 | PF 260 | P 400 | P 500 | P 700 | P 900 |
|---|---|---|---|---|---|---|---|---|---|---|
| B Medical Systems Electronics | Digital display | ● | ● | ● | ● | ●2 | - | - | - | - |
| | 4.3'' digital color display | - | - | - | - | - | ● | ● | ● | ● |
| | 7'' full touchscreen display | - | - | - | - | - | ○ | ○ | ○ | ○ |
| Interior equipment | Top \| Bottom Drawer | - \| ●1 | - \| ●1 | - \| ●1 | - \| ●1 | ●1 \| ●2 | - | - | - | - |
| | Drawer with Front Cover | ○1 | ○1 | ○ ≤ 5 | ○ ≤ 6 | ●1 \| ○1 | - | - | - | - |
| | Wire Shelf | ●1 | ●2 | ●5 | ●7 | ●2 | ●5 | ●5 | ●5 | ●5 |
| | ST-Shelf | - | - | - | - | - | ○ | ○ | ○ | ○ |
| Internal LED lighting | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| °B Connected - Monitoring Software | | ○ | ○ | ○ | ○ | ○ | ● | ● | ● | ● |
| DCU - Data Communication Unit (in combination with °B Connected) | | ○ | ○ | ○ | ○ | ○ | - | - | - | - |
| Ethernet interface | | - | - | - | - | - | ● | ● | ● | ● |
| Ambient temperature sensor | | - | - | - | - | - | ○ | ○ | ○ | ○ |
| Potential-free alarm contact in case of system failure | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Integrated port for external sensor (installed by customer) | | ● | ● | ● | ● | ●2 | ● | ● | ● | ● |
| Rollers \| Smooth castors with stabilizers | | - \| - | ●2 \| - | ●2 \| - | ●2 \| - | ●2 \| - | - \| ●4 | - \| ●4 | - \| ●4 | - \| ●4 |
| Door hinge Right \| Left | | ● \| ○ | ● \| ○ | ● \| ○ | ● \| ○ | ● \| ○ | ● \| ○ | ● \| ○ | ● \| ○ | ● \| ○ |
| Wooden packaging for ocean transport / export | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

● Standard    ○ Optional    - Not available

Subject to change without prior notice.

# P RANGE
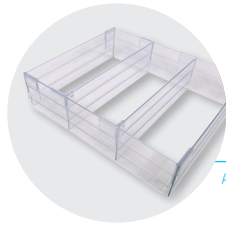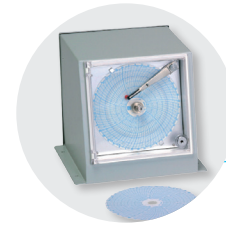


DIVIDERS SET

Available for Drawer with Front Cover



S-RACK



TEMPERATURE CHART RECORDER

(sample image)

## Accessories
### Standard & optional

| | P 55 | P 130 | P 290 | P 380 | PF 260 | P 400 | P 500 | P 700 | P 900 |
|---|---|---|---|---|---|---|---|---|---|
| *Dividers Set* (H 35 mm or H 100 mm)<br>*to facilitate the handling and storage management* | ○ 1 | ○ 1 | ○ ≤ 5 | ○ ≤ 6 | ○ ≤ 2 | - | - | - | - |
| *S-Rack* (H 100 x W 113 x D 638 mm) | - | - | - | - | - | ○ | ○ | ○ | ○ |
| *Temperature chart recorder*<br>*pre mounted (in the form of a circular chart recorder)* | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

● Standard   ○ Optional   - Not available

Subject to change without prior notice.

**SAVING LIVES** THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

# Full functionalities at a glance

## B Medical Systems | Electronics

**PRECISION LINE** | Multifunctional electronics with digital display and easy access, in the door handle; compatible with °B Connected monitored solution.
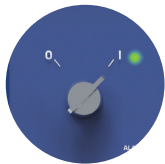
### ◉ Key power switch
### O = OFF / I = ON

- To switch the unit on, turn the key switch to position „I". The green power LED lights up
- After the self-check, the temperature inside the device is displayed

### ◉ Digital display

During normal operation the display shows:

- Left-hand side: current time and internal temperature displayed in °C (Celsius) or °F (Fahrenheit) in increments of 0.1°
- Right-hand side: the maximum and minimum inside temperature

### ◉ Acoustic and visual alarm signal

When an alarm occurs, the red alarm LED lights up and an acoustic signal sounds. The corresponding alarm message appears on the display alternately with the measured inside temperature. If several alarms occur simultaneously, the messages will be shown alternately.
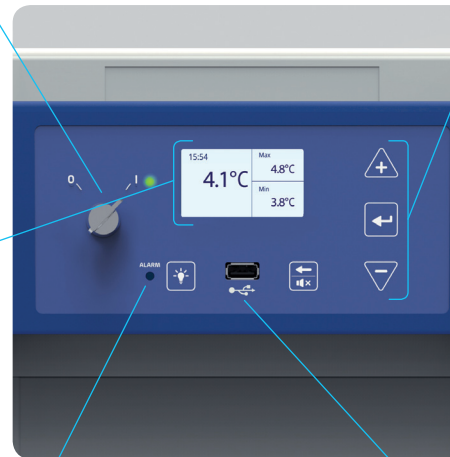
### ◉ Function buttons

- UP / DOWN buttons: navigation within the parameters and modification of their values
- ENTER button: use the ENTER-key to confirm the actual selection. This applies to the parameter value. The change of a parameter only becomes effective when confirmed
- MUTE / BACK button: in case of an alarm, the acoustic alarm can be muted for a specified time. In Parameter-mode the same key acts a "BACK-button" to go one step back
- LIGHT button: allows to switch on or off the interior light of the device without opening the door

### ◉ USB-port

A USB port is available for data export only. Measured values of the display sensor are stored for at least 30 days (ring buffer) together with a time stamp.
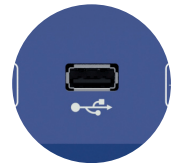
## PREMIUM LINE | Multi-function electronics with 4.3'' digital color display and capacitive buttons, integrated at optimal level in the door handle with full commands and connections.

### Power switch OFF / ON

• To switch on press the ON/OFF button for 1 second. The green LED will light up

• Switch off protected by password. The door will automatically unlock before powering down

### Digital color 4,3'' display

During normal operation the display shows:

• At the top: current voltage and current time

• Left-hand side: internal temperature displayed in °C (Celsius) or °F (Fahrenheit) in increments of 0.1°

• Right-hand side: temperature of the regulation sensor. Displaying this temperature can be disabled through the settings

### USB-port & SD-card-slot

### Acoustic and visual alarm signal

When an alarm occurs, the red alarm LED lights up and an acoustic signal sounds. The corresponding alarm message appears on the display together with the measured inside temperature. If several alarms occur simultaneously, the messages will be shown alternately.
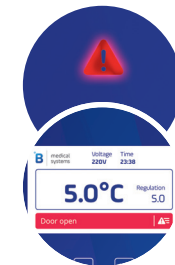
### Capacitive buttons

• ARROW buttons: select screen items with the arrow buttons. In parameter editing mode, the arrow buttons are used to change values

• ENTER button: activates the currently selected item

• BACK button: goes one level upwards in the menu tree structure. It also serves as "escape" button

• DOOR UNLOCK button: unlocks the door of the device

• MENU button: opens the menu screen

• ALARM MUTE button: deactivates the acoustic alarm for a predefined period of time

*Discover the ultimate control experience with the new B Medical Systems 7'' full touchscreen display*

*More confortable, more functionalities, no compromise!*

Available as option

**SAVING LIVES** THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

# Optimum control and protection

## B Medical Systems | °B Connected & DCU

### °B CONNECTED | MONITORING SOFTWARE

*Universal software for the monitoring of refrigeration devices, including the acquisition, recording and visualization of temperature data.*



- Unique monitoring software for the full range of Blood Management Solutions and Medical Refrigeration products
- Web-based interfaces for computers and mobile devices
- Modern design for simple and intuitive use
- Graphic display of temperature curves
- Integrated event and activity history of appliances' components
- Data recording on centralized database for long-term archiving
- Easy setting of specific alarm forwarding, via email or SMS
- Generation of reports compiling crucial data and activities
- Temperature and detailed device data export for third-party software
- Important price advantage compared to a traditional circular chart recorder and its spare parts
- REST API to access raw data directly from the database in read only mode

**KEY BENEFITS:**

- Unique interface for the monitoring of the full range of refrigeration devices
- Centralized database providing data access to entire customer network
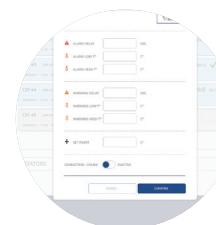
## 1 CONFIGURATION

**USER MANAGEMENT**
- Password login
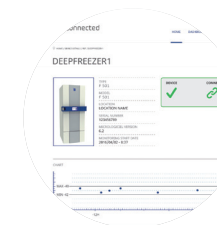- Access right

**DEVICE SETTINGS**
- Device information
- Device & user configuration

**ALARM PROFILE**
- Parameters of the alarm profile (day, hour, minute)
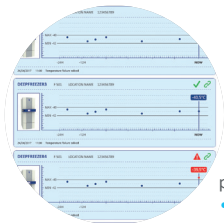- Alarm management

## 2 DISPLAYING

**DETAILED DISPLAY**
- Optimised design for mobile and touch compatible devices
- Support of multiple languages
- Real time data: Current temperatures, set point, upper and lower limit, door state, compressor runtime
- Log data: Events, alarms within date/time, event type, description of the event. Event and alarm confirmation function
- Batch management: Read in of plasma bags with a barcode scanner
- Movement state and door control of Agitator devices
- Parameter settings of each device: Factory settings, real time clock, language, firmware version, RS485 address, IP address
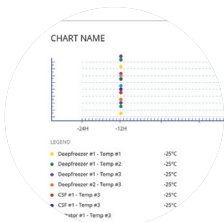
°B Connected & DCU offer a highly flexible system that is adaptable to specific customer requirements
> Complete & legally safe documentation of temperature data
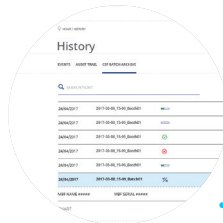> Comprehensive applications and diagnostic possibilities

## DCU | DATA COMMUNICATION UNIT (PRECISION LINE)



*Hardware module monitoring all operating conditions and passing them through to a central database – via local network.*

- Interface connection of B Medical Systems appliances to an existing network
- Graphical user interface displaying temperature and configurating devices and alarms easily
- Direct connection to Ethernet and serial bus RS485
- Digital in/out (programmable and customer-specific use)
- Recording and storing appliance relevant data
- Integrated USB port allowing to export stored data
- The DCU combined with the °B Connected software replaces the paper temperature recorder
- All data are recorded and save in the internal storage of the DCU and backed up in °B Connected data base if connected
- Several additional self-sufficient temperature sensors (up to 4 PT1000) may be connected
- Humidity sensor input (4-20 mA)

### KEY BENEFITS:

- Central system collecting relevant temperature data of the appliances and their respective operating conditions
- A number of connection facilities allowing flexible upgrades for individual projects

**③ ANALYSING**

### REAL TIME GRAPHICS

- Graphic temperature progress (in real time)
- Adjustable time axis
- Offline navigation

### INTERACTIVE ANALYSIS

- No limitation in terms of time range
- Freely scalable
- Detailed information for any point of time
- Temperature data, events and alarms
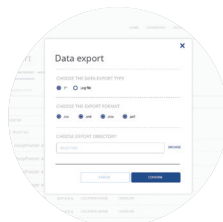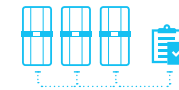- Login history and audit trails

### CONTROL CENTER

Overview (Control Monitor) of all monitored appliances:
- Information regarding status, appliance name, location, connection, upper and lower limit, current temperature, events / alarms
- Dashboard to combine several temperature measurements in one single graph

### PRINTED ANALYSIS

- Customisable print reports on daily, weekly and monthly basis
- Exports in various file types
- Standardised format

Subject to change without prior notice.

**SAVING LIVES** THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

°B CONNECTED & DCU
For optimum control and protection of your preparations

## Blood Management Solutions

*Safe global blood management: from collection to transfusion, transportation, processing and storage*

## Cold Chain

*Reliable and innovative solutions for safe vaccination around the world*

## Medical Refrigeration

*State-of-the-art technology for the exacting needs of the medical world*

**Our Global Expertise**

### After Sales support and service

We strive to provide you with the highest standards of service; not only through our selected distributors and partners for all your maintenance and service but also our second line trouble shooting and after sales service. This Factory based group of engineers is there to help our partners and yourself to get the best solution for your cold storage needs.

# B medical systems

## SAVING LIVES THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

B Medical Systems (formerly Dometic Medical Systems) has more than 35 years' experience in the medical refrigeration sector.

The company, formerly known as Electrolux Medical Systems, was founded in 1979 when the World Health Organization approached Electrolux in Vianden, Luxembourg, to create a solution for the safe storage and transport of vaccines around the world. In 2001, Electrolux Medical Systems became part of the Dometic Group, and was renamed Dometic Medical Systems. Having established a legitimate reputation in the medical equipment industry, the company has also become a global leader in vaccine cold chain.

**Luxembourg**, in the heart of Europe

**B Medical Systems S.à r.l.**

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