

PRODUCT PORTFOLIO

Biomanufacturing solutions

For sterilization and medical
refrigeration equipment
manufacturers

In the biomanufacturing industry, sterilization and medical refrigeration equipment require electrical products that help with manufacturing. ABB solutions can help elevate your production in this essential industry. Stricter infection protocols and increased investment in healthcare drive this industry's growth.

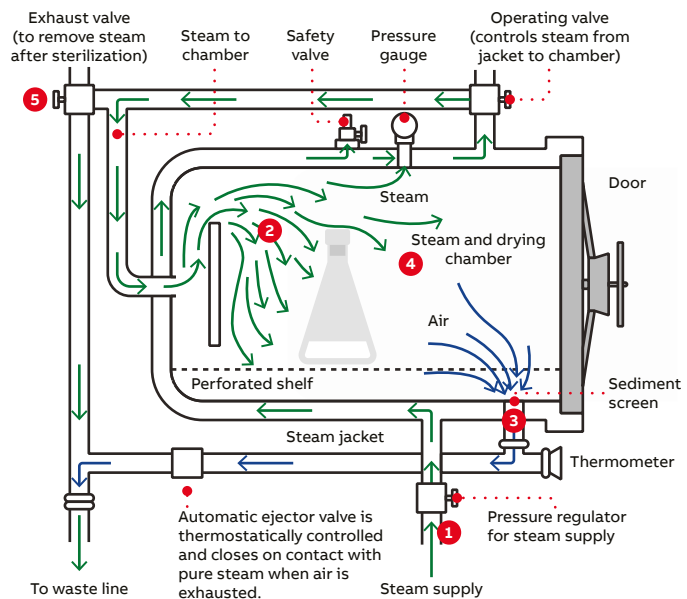
Application overview

Autoclave sterilization

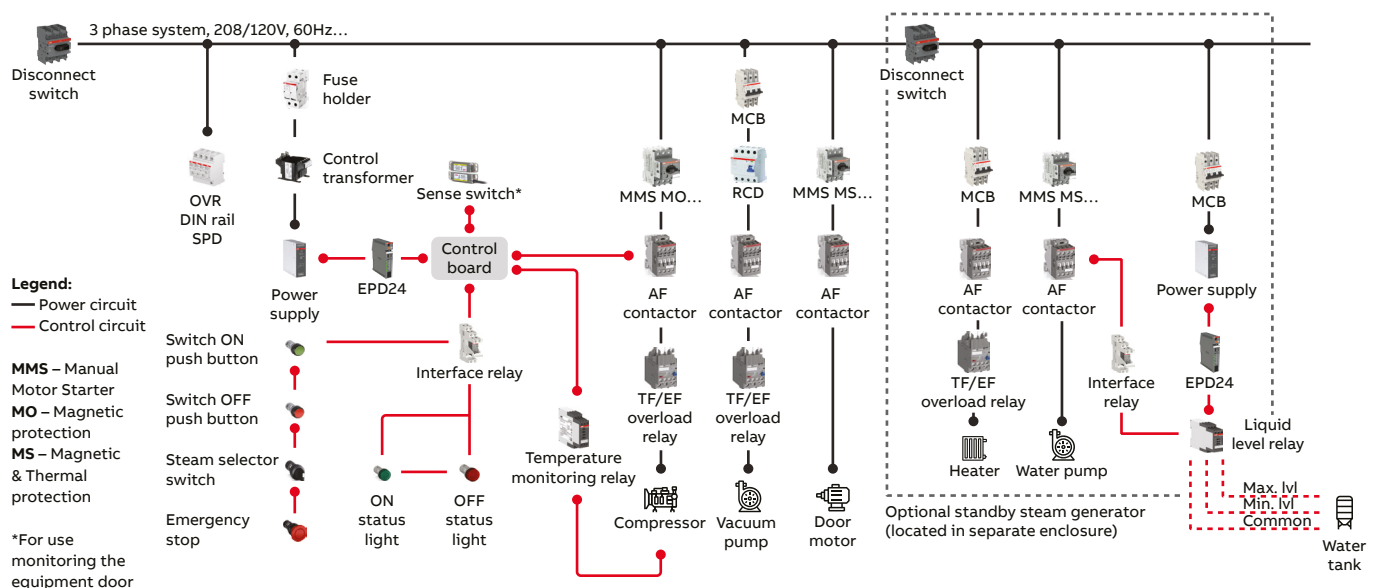
An autoclave sterilizer is a sealed device that purifies materials with saturated steam under pressure. The figure shows the typical phases of a cycle.

Autoclave sterilization involves:

1. Pre-conditioning and heating
2. Exposure
3. Pressure release
4. Drying
5. Exhaust phase



Power and control solutions for autoclave sterilization equipment



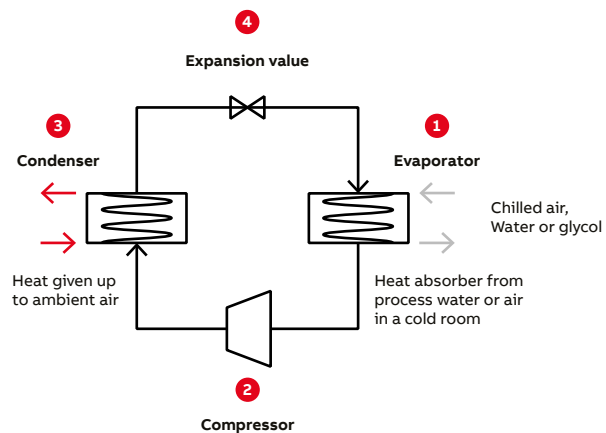
Application overview

Medical Refrigeration

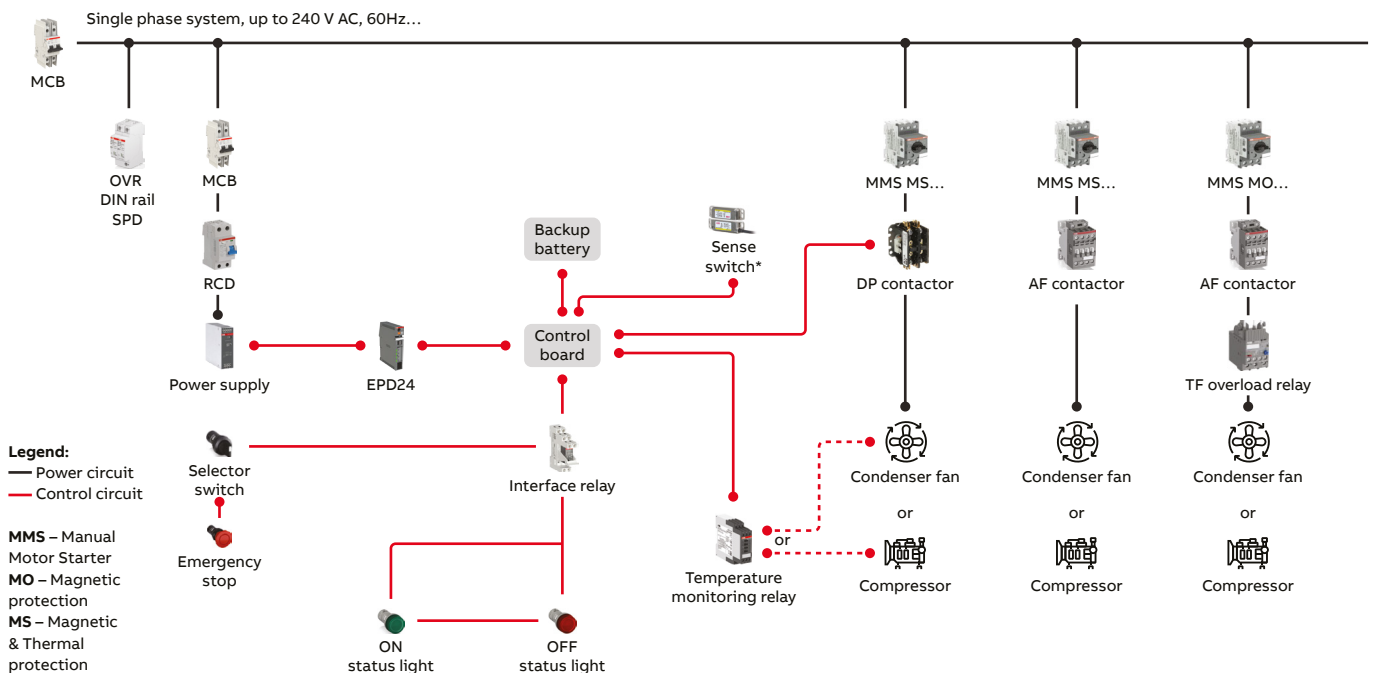
Medical refrigeration is essential for preserving and maintaining the efficacy, integrity, storage, and safety of medical products within the biomedical industry. The figure below shows the overview of a typical medical refrigeration cycle.

Overview of a typical refrigeration cycle

1. Evaporator
2. Compressor
3. Condenser
4. Expansion valve



Power and control solutions for the medical refrigeration equipment



*For use monitoring the equipment door

NOTE: THIS CONFIGURATION IS FOR A GENERIC SYSTEM AND IS NOT REPRESENTATIVE OF EXISTING MANUFACTURERS.

Key values



Continuous operation

Help ensure optimal uptime with reliable connections and coordinated products that provide robust switching and motor control as well as protection against overloads and short circuits.



Energy-efficient system

Boost control panel energy efficiency with our AF coil technology, reducing energy consumption, dissipating less heat, and decreasing temperature rise while increasing panel density.



Easy to install

Reduce control panel assembly time and simplify installation with our starter connection kits, push-in spring terminals, and snap-in accessories.



Compact design

Save space with narrower designs in circuit breakers and contactors that easily fit your application, helping to reduce the control panel dimensions and costs.

Featured products

AF contactors



Product range

UL 508 and UL 60947-4-1 contactors certified for up to 450 hp – 240 V, 900 hp – 480 V, and 2850 A – general use.

Installation

Comes in screw, push-in spring and ring tongue connection types. The push-in spring terminals offer only one push for extremely fast wiring.

Energy efficient

A reduction of the coil's energy consumption lets customers save energy.



Miniature circuit breakers (MCBs)



Product range

Largest selection of current-limiting, compact, DIN-rail mounted MCBs for AC and DC applications with ratings of 0.2 to 100 A, up to 600 V AC/DC and 50 kA short circuit protection.

Safety

Thermal and magnetic trips are provided to cover both over-current and short-circuit faults.

Compliance

UL 489 and UL 1077 approved.



Manual motor starters



Protection and control

Protection and control in almost every situation, including hazardous areas, protecting installations from short-circuits, overloads and phase failures while also controlling the current flow through a simple ON/OFF switch.

Speed up your projects

The main range of accessories is shared across multiple starters (both with screw and push-in spring terminals available), making logistics and planning simpler.

Continuous operation

Fuseless motor protection reduces maintenance costs and downtimes by avoiding fuse replacement after faults.



Measuring and monitoring relays

**Design**

Wide range of products from single- and three-phase monitors to temperature monitoring relays.

Technology

Easy Connect Technology with push-in terminals allows the product to be wired much more quickly and easily – without the need for tools.

Product range

Comes in value devices (CM-E range) and advanced solutions (CM-S and CM-N range) to meet customer's needs.



DIN-rail surge protective devices (SPDs)

**Product range**

UL 1449 5th edition and has options for voltages up to 600 V AC.

Durability

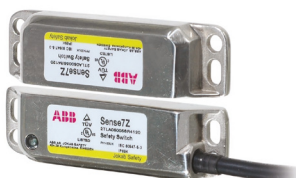
Safety reserve system with two varistors per line extends protection lifetime.

Installation

Pluggable and replaceable cartridges for easy replacement during maintenance.



Sense switches

**Product ratings**

Featuring a stainless steel 316 body and IP69K rating.

Durability

The Sense7Z switch resists dirt and water, making it ideal for harsh medical environments. Operating from -25°C to +70°C (+105°C for short duration), the Sense7Z switch provides reliable performance across diverse equipment and temperature conditions.

Installation

A large sensing distance and a high tolerance for misalignment makes Sense7Z easy to install.



Complementary products

Residual current devices (RCDs)



Product range

This product trips when the system leaks a significant current to ground and it is rated up to 125 A, 120–277 V AC (2-pole) and 120–480V V AC (4-pole).

Innovation

The contact position indicator (CPI) always indicates the status of the contacts (red = closed contacts; green = open contacts) independent of the toggle position.

Compliance

The ground-fault sensing and relaying equipment components are UL 1053 approved.



Fuse holders



Durability and reliability

Offers venting grooves and cooling chambers to improve heat dissipation.

Product range

UL approved IP20 fuse holders with ratings up to 60 A at 600 V AC/DC.

Installation

Ergonomic flip hinge makes fuse replacement easier in small spaces, even while wearing gloves.



Softstarters



Secure motor reliability

Help increase your motor's lifetime by protecting it from electrical stress and optimizing your load, application, and motor size.

Improve installation efficiency

Reduce your installation time and panel size by having all the features you need built into your softstarter, such as a built-in bypass or overload protection.

Increase application productivity

Reduce the mechanical stress on your motor application, which will increase your uptime, by using torque control, pump cleaning, motor brake, and many other features.



OS fusible disconnect switches

**Safety and protection**

Designed for personal safety as well as for reliable process protection.

Reliability and performance

The knife contact design, in combination with the fuse link, enables rapid fault clearance and maintains a protection level even after a fault occurs.

Installation

Its accessories create considerable savings in terms of installation time and costs. For example, the shaft can be adjusted to various installation depths, which eliminates the need for special cutting tools.



OT non-fusible disconnect switches

**Product range**

UL 508 and UL 98 approved portfolio of switches with ratings between 16 and 2000 A for AC.

Installation

Their modular design and smaller dimensions enable installation into even the smallest enclosures, saving space and significantly reducing material, handling and installation costs.

Reliability

Designed to be virtually maintenance free across their entire extended lifespan.



Electronic protection devices

**Product range**

UL 508 and UL 2367 approved and variable rated currents can be set on advanced from 0.5 A to 12 A or on entry from 1 A to 10 A. Expansion up to 32 channels (8 devices) via jumpers.

Reliability and performance


This product offers selective overcurrent protection for the loads connected and reacts to short circuits or overloads more rapidly than the supplying switch mode power supply.

Energy efficiency

The 4-channel devices feature very high efficiency and significantly reduced power loss.





SACE® Formula circuit breakers



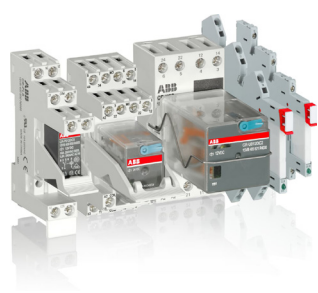
Product range
Range consists of two frames, A1 and A2, which reach up to 100 A and 250 A, respectively, are rated up to 240 VAC or 125 VDC, and are 1, 2, or 3 poles.

Ready to use
Protection trip unit has fixed thermal and magnetic threshold values to put the circuitbreaker into service more rapidly.

Space savings
Compact dimensions and coordinated depths mean standardized dimensions and savings in panel design.



Interface relays and optocouplers




Continuous operation
Optocouplers allow for continuous operation without any mechanical wear-and-tear.

Installation
The interface relay includes both pluggable and non-pluggable relays. The pluggable relays allow for the easy and seamless exchange of relay modules.

Product rating
The wide variety of pluggable interface relays have coil voltages from 5 V DC to 230 V AC and are accompanied by standard or logic sockets that may be used for switching AC or DC loads.



22 mm pilot devices




Product range
Modular plastic and metal ranges include flexible and adjustable products to meet your exact needs.

Reliability
Designed with a protection degree of up to 4X, guaranteeing reliability in extreme environments.

Installation
The compact range reduces installation space and saves time and the modular range enables tool-free installation that is quick and simple.



NEMA 30 mm heavy-duty oil-tight pilot devices



Product range
NEMA types 1, 3, 3R, 4, 4X, 12 and 13 to meet a wide range of applications.

Durability
Due to the octagonal locking nut design, greater torque can be applied during assembly and installation to provide a water- and oil-tight fit.

Installation
Ease of assembly with one-screw contact block mounting and easy wiring with 45° angled wire terminals.

E150 thermal-magnetic molded case circuit breakers



Product range

Range of breakers from 10 to 150 A with multiple short circuit tiers, in 1, 2, or 3 poles, and rated up to 600 VAC or 500 VDC.

High performance

Reliable operation and protection enabling seamless management of power distribution networks with efficiency and minimized downtime.

Installation

Non-interchangeable trip breakers can be accessorized with various signaling and controlling functions as well as add on UL listed current limiters.



TEY circuit breakers



Product range

Range of breakers from 15 to 125 A with multiple short circuit tiers (TEY 14 kA, TEYF 18 kA, TEYD 25 kA, TEYH 35 kA and TEYL 65 kA at 480/277 V) allow the most cost-effective ratings for the application.

High performance

Dependable and effective thermal-magnetic trip units with time-current curves designed for easy coordination with upstream main devices.

Installation

Flexible installation with a mounting base for unit mount/lug-lug type installations and 1 inch per pole spacing.



Limit switches



Reliable in extreme conditions

Plastic or metal casing limit switches are designed to operate in the most difficult environments.

Continuous operation

High mechanical durability can handle up to 30 million operations with contacts that are mechanically linked to actuators.

Easy to install

Satisfy design specifications with the flexibility of three different types of electrical connections and cable lengths.



Control power and machine tool transformers



Installation

Type IP transformers are lightweight, small, and designed for minimum mounting dimensions.

Safety


Finger-safe terminals offer added protection and safety.

Reliability

Pressure-plate terminals ensure secure connections.





Power supplies



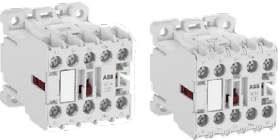
Product range
Wide range of AC or DC supply voltages with output voltage of up to 48 V DC, output current of up to 20 A and output power of up to 480 W.

Durability
Coated (PCBA) and ATEX certification available for hazardous locations. It has overheat protection, active power factor correction and a broad certified AC and DC input range.

Efficiency
These power supplies have a 150% integrated power reserve and operate at an efficiency of up to 94%.



M mini contactor relays




Product range
Contactors certified for up to 10 hp and 11 A at 600 V AC and 20 A (600 V AC) – general use.

Installation
Comes in two terminal types available: screw and screw for ring tong ferrules. Complete range of accessories including front or side mounting auxiliary contact blocks, surge suppressors and electronic timers.

Operation
Standard DC versions with extended operating limits coils.



B series mini contactors




Product range
Contactors certified for up to 5 hp and 6.1 A at 600 V AC and 16 A – general use.

Installation
Connection types available: screw, soldering pins and flat pin. Available in mini-reversing contactor with built-in mechanical interlock.

Energy efficient
Energy and cost savings with special version of 1.4 W coil consumption for direct connection to PLC.



Definite purpose contactors



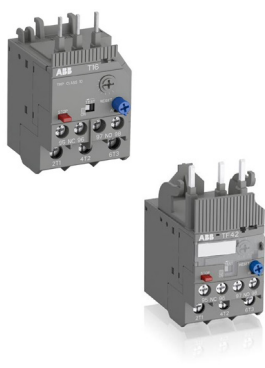
Product range
Define purpose contactors certified for wide current range from 20 A up to 75 A and up to 600 V AC.

Size flexibility
Comes in various flexible sizes, compact 1 and 2 pole contactors and full size 2, 3, and 4-pole devices.

Easy installation
Industry standard mounting plate provides easily accessible mounting holes.

Overload relays

**Product range**

Thermal overload relays cover a current range from 0.1 A to 200 A, while electronic overload relays cover an even larger current range from 0.1 A to 1250 A.

Energy efficient

Electronic overload relays combine high accuracy with an energy-efficient design that does not need an extra external supply.

Continuous operation

The selectable automatic reset mode allows for reduced downtimes and traveling costs for installation in dispersed locations.



Electronic compact starters

**Saving space**

With a narrow width of 22.5 mm, this starter saves cabinet space, especially with group mounting, and yet still provides motor starting functionalities with motor protection and safety embedded.

Safety and protection

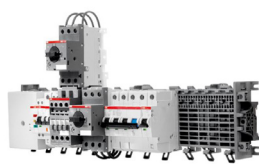
Protect your people with an emergency stop version that complies with SIL 3, PL e safety standards.

Easy to install

Wiring time during installation is cut to a minimum with motor protection, reversing function and emergency stop already integrated into the product.



SMISSLINE TP power bar systems

**Installation**

Quick maintenance of the switchboard as the wiring is already integrated into the plug-in socket system.

Flexibility

Rapid replacement, easy expansion and mixed-pole layout possible and directly pluggable devices such as MCBs, RCDs, RCBOs, motor starters, and switch disconnectors.

Safety

Allows for load-free plugging in and unplugging under voltage without additional personal safety equipment for protection against electrical hazards.





To learn more about ABB engineered products for biomanufacturing, visit our website at <https://electrification.us.abb.com/your-business/oem/biomanufacturing>

CONTACT US

Do you have a similar project and are you searching for the right application configuration? Contact us and talk to our experts!



ABB Inc.
305 Gregson Dr.
Cary, NC 27511
United States
electrification.us.abb.com

ABB has made every attempt to ensure the accuracy and reliability of the contents of this document. However, all content is provided for general informational purposes only, and ABB makes no guaranty or warranty, express or implied, as to the accuracy of any technical content, or that the information contained in this publication will be error free and all such guarantees or

warranties are expressly disclaimed. ABB may change or modify the contents at any time, without prior notice. We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.
© 2024 ABB Inc. All rights reserved.