



BROCHURE

Product and Solutions for the evolution of direct current systems

Direct current.

Your next energy

The way power is generated, harnessed and distributed is changing. Developments such as the increased adoption of renewables, the decentralization of electricity generation, and the new power demands of EV charging, 5G and many consumer goods, have resulted in a reassessment of how and when alternating and direct current are employed.

DC systems are becoming more widespread thanks to the efficiencies they offer, and are particularly appropriate for solar farms, battery energy storage, marine applications, microgrids, commercial and residential buildings, and industrial plants.

Changing power landscape



Increasing decentralization and renewables

30% of power generation by 2023



New power demands:



EV DC fast chargers
-90% charging time



5G market
\$5.5 billion by 2025



50% of consumer goods use DC

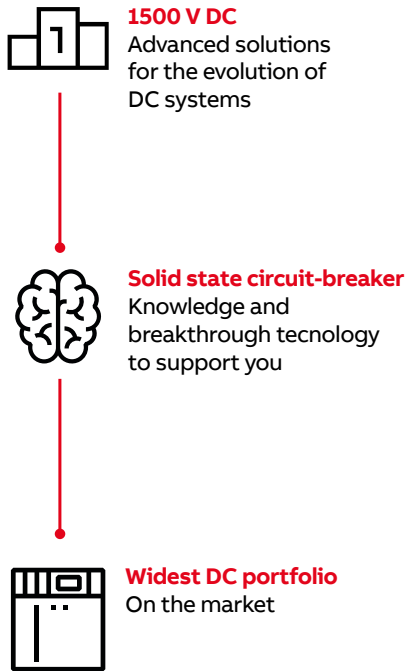


Empowering your success

At ABB, we are committed to addressing the world’s energy challenges. We are leading the development of high-quality solutions for DC power, pushing boundaries to bring to market breakthrough products which deliver more for our customers.

These include the first fully-integrated circuit breaker with embedded DC protection and the first switch-disconnector designed specifically for DC applications. More recently, we introduced our revolutionary solid-state circuit breaker concept, which meets the highest demands of next-generation power applications as they enter the digital age.

Our Direct Current offering



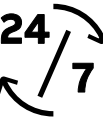
Safety and protection

With the widest DC portfolio on the market to protect people and equipment to support safety in the most productive way.



Maximum efficiency

Whether it is through lower energy consumption, improved power management or better material, improving energy efficiency is a core competence for ABB.



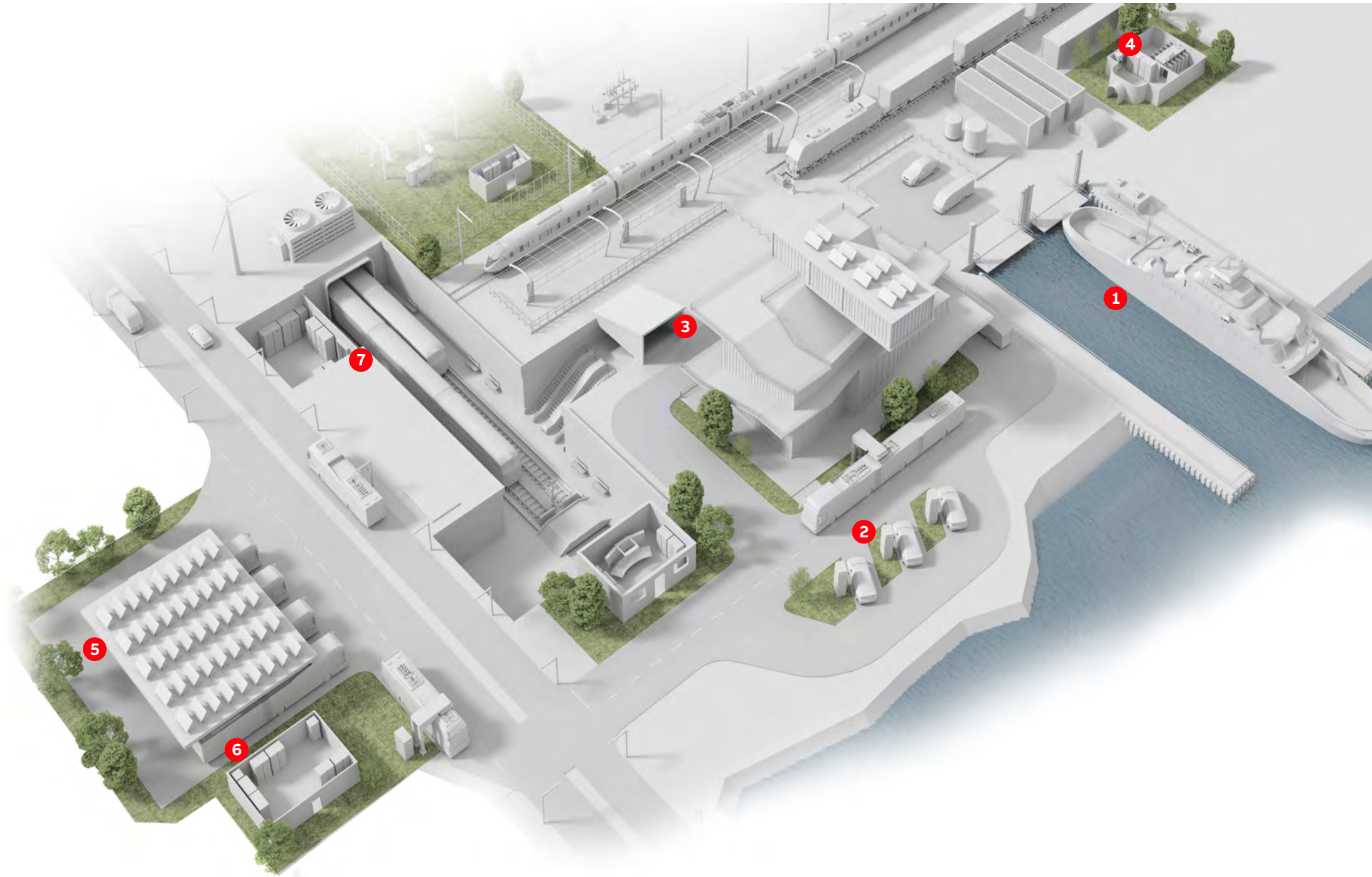
Increased productivity

At ABB, we are committed to addressing the world’s energy challenges. We are leading the development of high quality solutions for DC power, ensuring increased productivity to your business.

Benefits and advantages of our DC portfolio

Our portfolio, the widest on the market, has been created to meet the needs of all those Installations based on DC power, with a focus on ensuring safety and protection, maximum efficiency and increased productivity.

By partnering with ABB, you can be confident that whatever DC demands you are facing, today or tomorrow, we have the knowledge and the technology to support you.





Marine

GENERAL

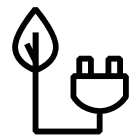
General

The role of direct current (DC) in the marine industry is maturing, driven by the need for improved sustainability and the potential for greater energy and fuel savings.

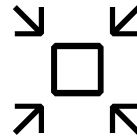
At ABB, we are perfectly positioned to support all marine stakeholders with high quality DC solutions. Our portfolio, the widest on the market, is comprised of breakthrough products which deliver more for our customers.

We'll work together with you to select the right solutions for maximum efficiency, minimum emissions, continuous operation and enhanced safety and protection.

DC advantages



Minimize environmental impact
Up to 30% fuel savings if variable speed generators are used (made possible due to the decoupling enabled by AC/DC converters). (Source: PWC Current Wars 2.0)



Space savings
Up to 40% weight savings and 80% less volume required for electrical distribution switchgear onboard small to medium vessels. (Source: ABB Technical Application Paper No. 24)



Continuos operation
Lighter and more compact drivers for feeding and adjusting electric propulsion (DC/AC instead of AC/AC).



Marine

OFFERING

Offering: Miniature Circuit Breakers



S200 M UC range
ABB's Universal Current MCB for DC and AC applications

The S200 M UC range of miniature circuit-breakers features permanent magnets on the internal arcing chutes able to extinguish an electric arc of up to 500 V DC with Icu = 10 kA, thus ensuring flexible control of both direct and alternating currents. Ideal for industry application because of the high breaking capacity of 10 kA.

System Voltage	Current ratings
up to 500 VDC	up to 63 A



Smissline TP
Smissline TP is a pluggable socket system that allows load-free devices and components to be plugged on and off under voltage with no need for additional personal protective equipment to guard against electrical hazards.

S400 M UC MCB for a direct current pluggable solution on the socket system.

System Voltage	Current ratings
up to 440 VDC	MCCB up to 250 A MCB up to 63 A



S800S-UC AND S804U-UCZ
Non polarized high performance Direct Current MCB with breaking capacity of 50kA and 10kA respectively, are suitable in a wide range of DC applications

System Voltage	Current ratings
up to 1000 VDC	up to 125 A



Marine

OFFERING

Offering: Breakers



SACE Tmax T
A complete range of moulded case circuit-breakers.

All the circuit-breakers, both three-pole and four-pole, are available in the fixed version; sizes T4 and T5 in the plug-in version and T4, T5, T6 also in the withdrawable one.

System Voltage		Current ratings
up to 1000 VDC		250-800 A
Type	System Voltage	Current ratings
T4N-PV/E	up to 1500 VDC	250 A



SACE Tmax XT
Low voltage Direct Current air circuit breaker SACE Emax DC is the only air circuit breaker on the market able to protect a DC plant up to 5000A at 1000V DC with integrated electronic trip units, including measuring and communication functions.

System Voltage	Current ratings
500 -750 VDC Range	up to 800A



SACE Emax DC
Low voltage Direct Current air circuit
Direct current is more and more a viable option not only for photovoltaic plants, but also for industrial, marine and data center applications. SACE Emax DC perfectly fits these needs. It is the only air circuit breaker on the market able to protect a DC plant up to 5000A at 1000V DC with integrated electronic trip units.

System Voltage	Current ratings
up to 1000 VDC	800-5000 A Range



Concept, product not for sales. For more information contact us.

Solid state circuit breaker Concept
A technological breakthrough by ABB – solid-state circuit breaker – will enhance performance of renewable energy solutions, industrial battery storage solutions and so-called edge grids.

System Voltage	Current ratings
up to 1250 VDC	2500 A



Marine

OFFERING

Offering: Switch-disconnectors



OTDC Switch-disconnectors 16...1000A
If operation under load is required, OTDC switch-disconnectors have a robust and high switching performance from 16A to 1000A, up to 1500 Vdc. The utilization categories covered are from DC-21B up to DC-22B and DC-PV2. OTDC Switches allow multi-circuit switching with a small footprint.

OTDC Switches have a high I_{cu} up to 63kA, and have been tested with fuses up to 100kA. They are certified according to DNV GL.

System Voltage	Current ratings
up to 1500 VDC	16-1000 A Range



OT Disconnectors 1600...4000 A, DC-20
OT disconnectors are suitable for applications in DC-20 category that do not require operation under load and where reliable isolation is needed.

OT Disconnectors have a high I_{cu} up to 100kA and impressive max. let-through peak currents. An electrical interlock enables safe operation for users.

System Voltage	Current ratings
up to 1500 VDC	1600-4000 A range



OT manually operated Switch-disconnectors
ABB switch-disconnectors are designed, built and tested for the best possible performance. They are designed to be virtually maintenance-free across their entire extended lifespan and offer reliable performance in any and all possible circumstances. Durability has been ensured by testing switches against the IEC60947- 3, UL508, UL98 and CSA standards.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Change-over switches
ABB offers a wide variety of manually and remotely operated change-over and bypass switches from 16 to 3200 Amperes range. A marine certified range of products available for demanding applications such as secondary source transfer, load transfer or any critical component maintenance bypass arrangement.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Marine

OFFERING

Offering: Switch-disconnectors



Tmax XT Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 750 VDC	up to 1250 A



Tmax T ed Emax Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 1000 VDC	up to 6300 A



SACE Tmax T - PV
The SACE Tmax PV range of switch-disconnectors for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

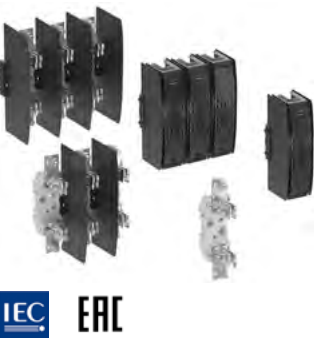
System Voltage	Current ratings
up to 1500 VDC	1600 A



Marine

OFFERING

Offering: Switch-Fuses and Fuse Gear



Fuse bases OFAZ and OFAX
The fuse bases can be used in combination with NH fuse-links according to IEC 60269-2 and DIN VDE 0636-2 and solid links.

Fuse bases offer a compact and simple solution for protection against short-circuit and over-currents. Fuses as protective elements are characterized by galvanically silver plated contacts providing reliable and high performing contact characteristics. OFAZ and OFAX fuse bases are available as open types or fully protected IP20 versions.

System Voltage	Current ratings
up to 1000 VDC	up to 1250 A



OS manual operated Switch Fuses
OS switch fuses offer a world-class performance for demanding marine applications. The OS range includes switch fuses from 20 to 1250 Amperes, available for most common fuses: DIN, BS, NFC, CC, JJ and L types.

OS switch fuses are DNV GL Marine certified and come with a wide range of different accessories such as interlocking and fuse monitoring devices.

System Voltage	Current ratings
up to 1000 VDC	20-1250 A Range



EasyLine - XLP Fuse switch-disconnectors
EasyLine range of fuse switch-disconnectors ensures high protection and reliable operation from 160A to 630A. Variants up to 440Vdc are available as 1- or 2-pole design.

System Voltage	Current ratings
up to 440 VDC	160-630 A range



SlimLine XR Gold (XRG)
The SlimLine XRG, switch-disconnector fuse drives exceptional energy efficiency, reducing temperature rise and enabling higher performance across the panel board.

System Voltage	Current ratings
up to 500 VDC	125-630 A range



Marine

OFFERING

Offering: Contactors



Contactors for DC switching
For a compact and efficient way of DC switching
GF, GAF and GA contactors are specifically designed for switching DC circuits up to 1500 V. Thanks to the efficient breaking of DC circuits, the product range is one of the most compact on the market for applications such as PV Solar, EV charging, UPS and Energy storage systems.

Type	System Voltage	Current ratings
GF	up to 1500 VDC	875 -1325 A Range
GAF	up to 1000 VDC	250-2050 A Range
GA	up to 1000 VDC	35-120 A Range



Motor protection and control
ABBs standard AF contactor range can also be used for switching DC from 850 V DC and below. To keep it running, you need Control ABB’s motor protection and control offering is among the widest on the market our comprehensive range of motor starting solutions, products and services delivers the certainty of consistent quality and performance.

System Voltage	Current ratings
220 -850 VDC Range	16-2650 A Range



Installation contactors
ABB’s hum-free installation contactor designs offer a wide range of ratings from 16 A to 100 A. Widely used in buildings for switching and controlling lighting, heating, ventilation, motor and pumps, the installation contactors take noise reduction to a new level. With an innovative AC/DC design that eliminates hum, a selection of tool-free accessories as well as manual and automatic versions.

System Voltage	Current ratings
up to 220 VDC	up to 100 A



Contactor relays for auxiliary circuit switching
ABB’s contactor relays offering features products of technological advancement as well as products with specific purposes. NF contactor relays allow use in all parts of the world and in all network conditions. The mini contactor relays range offer various contact combinations and specific connection possibilities. The AS contactor relays are efficient and allow you to optimize your equipment design.applications.

System Voltage	Current ratings
up to 600 VDC	up to 1 A



Offering: Electronic Relays and Controls



CP-C.1 power supplies
ABB's high-performance CP-C.1 power supplies for demanding industrial applications deliver high efficiency, high reliability and innovative functionality. This advanced range of power supplies has an integrated power reserve of up to 150% continuously and operate at an efficiency of up to 94 %.

System Voltage	Current ratings
Input: 90-300 V DC output: 24 VDC	5 A / 10 A / 20 A



CP-B power supplies
Ultracapacitor-based buffering units
ABB's ultra-capacitor based CP-B buffer modules serve to ensure a shortterm uninterrupted power supply system with a voltage of 24 V DC by buffering the load in case of power loss. The buffer modules feature a new technology of storing energy by using ultra-capacitors which entirely obviate the need for maintenance and exempt deep discharge in comparison to batteries.

System Voltage	Current ratings
Input: 24 V DC output: 24 VDC	3 A / 10 A / 20 A



Insulation monitoring relays for IT systems
ABB's CM-IWx insulation monitoring relays for IT systems provide continuous, reliable monitoring. The devices recognize insulation faults as they develop, tripping as soon as the value falls below minimum set thresholds. This makes systems more reliable and prevents interruptions caused by severe secondary insulation faults. Make your monitoring more secure and your maintenance smarter with CM-IWx insulation monitoring relays.

System Voltage	System leakage capacitance
up to 1500 VDC	monitoring up to 3000 µF

Marine certification up to 1000 VDC monitoring up to 20 µF



Voltage and current monitoring relays
ABB's CM range offers a wide selection of powerful, compact devices for the monitoring of currents and voltages in single-phase AC/DC systems. All come in a housing that is just 22.5 mm wide. This product range includes current and voltage monitoring relays for over- and undercurrent protection, over- and undervoltage protection and phase loss monitoring – from 3 mA to 15 A and from 3 V to 600 V. ABB's CM range gives your electric installation the highest safety and reliability.

System Voltage	Current ratings
up to 600 VDC	Up to 15 A direct



EVCI

GENERAL

General

ABB lays the foundations for a future of smarter, reliable, and emission-free mobility, accessible by everyone, everywhere.

The ABB product range includes circuit breakers, switch disconnectors, fuse disconnectors, fuses, residual current-operated circuit-breakers, metering devices, surge arresters, voltage & current sensors, remote switching contactors, consumer units and enclosures suitable for outdoor installation, all specially designed for these applications.

ABB can also provide a series of “plug & play” ev charging solution from compact, high quality AC wallboxes, reliable DC fast charging stations with robust connectivity, to innovative on-demand electric bus charging systems, we deploy infrastructure that meet the needs of the next generation of smarter mobility.

ABB Ability™ connected chargers enable fast global service and pro-active maintenance. ABB has years of experience in creating, installing and maintaining charging infrastructure, including several nationwide charger networks.

DC advantages



Energy Efficiency

Lower voltage drop due to no inductive effects along the connecting cables. Lower power losses due to lower cable resistance (no skin effect). Higher DC/DC converters efficiency compared to AC/DC converters having the same rated power.



Continuous Operation

Lower cable and busbar sizes, due to no inductive effects and no additional power losses, allow the switchgear footprint reduction and a simpler and smaller cabling along the distribution system.



Safety and protection

Less Utility outage phenomena thanks to the vehicle to grid function able to inject power into the AC grid for voltage and frequency support. Local loads continuous operation thanks to the easier connection of Distributed Energy Resources, like solar and battery energy storage systems, in the DC microgrid perspective .



EVCI

OFFERING

1

Offering: Miniature circuit breaker and Surge Protective Device



S200 M UC range
ABB's Universal Current MCB for DC and AC applications

The S200 M UC range of miniature circuit-breakers features permanent magnets on the internal arcing chutes able to extinguish an electric arc of up to 500 V DC with Icu = 10 kA, thus ensuring flexible control of both direct and alternating currents. Ideal for industry application because of the high breaking capacity of 10 kA.

System Voltage	Current ratings
up to 500 VDC	up to 63 A



F200 B Type
Built to make the difference
The F200 Type B are universal current sensitive residual current circuit breakers RCCBs designed for industrial applications where there is an increasing use of devices like frequency converters, medical equipment's and UPS systems. The RCCB Type B protect faults occurred due to smooth DC residual currents or currents with low residual ripple which are common in the above applications.

System Voltage	Current ratings
up to 400 VAC.	up to 125 A



S800S-UC and S804U-UCZ
Non polarized high performance MCB with breaking capacity of 50kA and 10kA respectively, are suitable in a wide range of DC applications

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



Surge Protective Devices OVR PV QS
Combined Type 1 and Type 2 SPD can guarantee an overvoltage reduction to protect end equipment, up to 1500 VDC.

System Voltage
up to 1500 VDC



EVCI

OFFERING

Offering: Breakers



SACE Tmax T4N-PV/E
The SACE Tmax PV range of molded-case circuit-breakers for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	250 A



SACE Tmax T
A complete range of moulded case circuit-breakers.

All the circuit-breakers, both three-pole and four-pole, are available in the fixed version; sizes T4 and T5 in the plug-in version and T4, T5, T6, also in the withdrawable one.

System Voltage	Current ratings
up to 1000 VDC	250-800 A



SACE Tmax XT
The Tmax XT trip units are designed to be used in a wide range of applications. Thermal-magnetic trip units are suitable for DC networks, these are a solution for protection against both overloads and short-circuits. The new X version assure Icu up to 100 Ka @ 750 VDC.

System Voltage	Current ratings
500 -750 VDC Range	up to 800A



EVCI

OFFERING

Offering: Breakers and Switch-disconnectors



SACE Emax DC
Low voltage Direct Current air circuit breaker
SACE Emax DC is the only air circuit breaker on the market able to protect a DC plant up to 5000A at 1000V DC with integrated electronic trip units, including measuring and communication functions.

System Voltage	Current ratings
up to 1000 VDC	800-5000 A Range



Concept, product not for sales.
For more information contact us.

Solid state circuit breaker Concept
A technological breakthrough by ABB – solid-state circuit breaker – will enhance performance of renewable energy solutions, industrial battery storage solutions and so-called edge grids.

System Voltage	Current ratings
up to 1250 VDC	2500 A



EVCI

OFFERING

Offering: Switch-disconnectors



OTDC Switch-disconnectors 16...1000A
If operation under load is required, OTDC switch-disconnectors have a robust and high switching performance from 16A to 1000A, up to 1500 Vdc. The utilization categories covered are from DC-21B up to DC-22B and DC-PV2. OTDC Switches allow multi-circuit switching with a small footprint.

OTDC Switches have a high I_{cu} up to 63kA, and have been tested with fuses up to 100kA. They are certified according to DNV GL.

System Voltage	Current ratings
up to 1500 VDC	16-1000 A Range



OT Disconnectors 1600...4000 A, DC-20
OT disconnectors are suitable for applications in DC-20 category that do not require operation under load and where reliable isolation is needed.

OT Disconnectors have a high I_{cu} up to 100kA and impressive max. let-through peak currents. An electrical interlock enables safe operation for users.

System Voltage	Current ratings
up to 1500 VDC	1600-4000 A range



OT manually operated Switch-disconnectors
ABB switch-disconnectors are designed, built and tested for the best possible performance. They are designed to be virtually maintenance-free across their entire extended lifespan and offer reliable performance in any and all possible circumstances. Durability has been ensured by testing switches against the IEC60947- 3, UL508, UL98 and CSA standards.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Change-over switches
ABB offers a wide variety of manually and remotely operated change-over and bypass switches from 16 to 3200 Amperes range. A marine certified range of products available for demanding applications such as secondary source transfer, load transfer or any critical component maintenance bypass arrangement.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



EVCI

OFFERING

Offering: Switch-disconnectors



Tmax XT Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 750 VDC	up to 1250 A



Tmax T ed Emax Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 1000 VDC	up to 6300 A



SACE Tmax T - PV
The SACE Tmax PV range of switch-disconnectors for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	1600 A



Emax 2 MS - 1500V DC
Emax 2 MS/DC-E is the air switch-disconnectors up to 4000A IEC and 3200 A UL, and up to 100kA Icw (1s) withstand current. It is made in compliance with IEC60947-3 annex D (DC-PV2 category), UL 489B, UL489F, and CCC approval.

System Voltage	Current ratings
up to 1500 VDC	up to 4000 A



EVCI

OFFERING

Offering: Switch-Fuses and Fuse Gear



OS manual operated Switch Fuses
OS switch fuses offer a world-class performance for demanding marine applications. The OS range includes switch fuses from 20 to 1250 Amperes, available for most common fuses: DIN, BS, NFC, CC, JJ and L types.

OS switch fuses are DNV GL Marine certified and come with a wide range of different accessories such as interlocking and fuse monitoring devices.

System Voltage	Current ratings
up to 1000 VDC	20-1250 A Range



Fuse bases OFAZ and OFAX
The fuse bases can be used in combination with NH fuse-links according to IEC 60269-2 and DIN VDE 0636-2 and solid links.

Fuse bases offer a compact and simple solution for protection against short-circuit and over-currents. Fuses as protective elements are characterized by galvanically silver plated contacts providing reliable and high performing contact characteristics. OFAZ and OFAX fuse bases are available as open types or fully protected IP20 versions.

System Voltage	Current ratings
up to 1000 VDC	up to 1250 A



EasyLine - XLP Fuse switch-disconnectors
EasyLine range of fuse switch-disconnectors ensures high protection and reliable operation from 160A to 630A. Variants up to 440Vdc are available as 1- or 2-pole design.

System Voltage	Current ratings
up to 440 VDC	160-630 A range



E90 PV 1000 V DC and 1500 V DC range of fuse holders and fuses
The E90 PV series of fuse holders have been specifically designed for photovoltaic applications. Thanks to their rated voltage of 1000 and 1500 V DC.

System Voltage	Current ratings
up to 1500 VDC	up to 32 A



EVCI

OFFERING

7

Offering: Contactors



Contactors for DC switching
For a compact and efficient way of DC switching
GF, GAF and GA contactors are specifically designed for switching DC circuits up to 1500 V. Thanks to the efficient breaking of DC circuits, the product range is one of the most compact on the market for applications such as PV Solar, EV charging, UPS and Energy storage systems.

Type	System Voltage	Current ratings
GF	up to 1500 VDC	875 -1325 A Range
GAF	up to 1000 VDC	250-2050 A Range
GA	up to 1000 VDC	35-120 A Range



Motor protection and control
ABBs standard AF contactor range can also be used for switching DC from 850 V DC and below. To keep it running, you need Control ABB's motor protection and control offering is among the widest on the market our comprehensive range of motor starting solutions, products and services delivers the certainty of consistent quality and performance.

System Voltage	Current ratings
220 -850 VDC Range	16-2650 A Range



Installation contactors
ABB's hum-free installation contactor designs offer a wide range of ratings from 16 A to 100 A. Widely used in buildings for switching and controlling lighting, heating, ventilation, motor and pumps, the installation contactors take noise reduction to a new level. With an innovative AC/DC design that eliminates hum, a selection of tool-free accessories as well as manual and automatic versions.

System Voltage	Current ratings
up to 220 VDC	up to 100 A



Contactor relays for auxiliary circuit switching
ABB's contactor relays offering features products of technological advancement as well as products with specific purposes. NF contactor relays allow use in all parts of the world and in all network conditions. The mini contactor relays range offer various contact combinations and specific connection possibilities. The AS contactor relays are efficient and allow you to optimize your equipment design.applications.

System Voltage	Current ratings
up to 600 VDC	up to 1 A



EVCI

OFFERING

Offering: Electronic relays and controls



CP-D power supplies
Power supplies to fit any panel
ABB's CP-D range of power supply units with its modular DIN rail component (MRDC) design fits all domestic installation and distribution panels.

System Voltage	Current ratings
Input: 120-375 V DC	0.42 A / 0.83 A / 1.3 A
output: 12 V, 24 V DC	/ 2.1 A / 2.5 A / 4.2 A



CP-E power supplies
Power supplies with enhanced functionality
ABB's CP-E range offers enhanced functionality and a simpler, more rational selection process. All power supply units can be operated at an ambient temperature of up to +70 °C.

System Voltage	Current ratings
Input: 90-375 V DC	0.625 A / 0.75 A / 1.25 A
output: 5V, 12 V, 24 V, 48 V DC	/ 2.5 A / 3 A / 5 A / 10 A / 20 A



CP-T power supplies
Advanced three-phase power supply units
ABB's CP-T range of three-phase power supply units perfectly complement existing power supply offering in terms of design and functionality, giving you more advanced options for your three-phase applications.

System Voltage	Current ratings
Input: 480-820 V DC	5 A / 10 A / 20 /40 A
output: 24 V, 48 V DC	



CP-C.1 power supplies
ABB's high-performance CP-C.1 power supplies for demanding industrial applications deliver high efficiency, high reliability and innovative functionality. This advanced range of power supplies has an integrated power reserve of up to 150% continuously and operate at an efficiency of up to 94 %.

System Voltage	Current ratings
Input: 90-300 V DC	5 A / 10 A / 20 A
output: 24 VDC	



EVCI

OFFERING

Offering: Electronic relays & controls



CP-B power supplies
Ultracapacitor-based buffering units
ABB's ultra-capacitor based CP-B buffer modules serve to ensure a shortterm uninterrupted power supply system with a voltage of 24 V DC by buffering the load in case of power loss.
The buffer modules feature a new technology of storing energy by using ultra-capacitors which entirely obviate the need for maintenance and exempt deep discharge in comparison to batteries.

System Voltage	Current ratings
Input: 24 V DC output: 24 VDC	3 A / 10 A / 20 A



Insulation monitoring relays for IT systems
ABB's CM-IWx insulation monitoring relays for IT systems provide continuous, reliable monitoring. The devices recognize insulation faults as they develop, tripping as soon as the value falls below minimum set thresholds. This makes systems more reliable and prevents interruptions caused by severe secondary insulation faults. Make your monitoring more secure and your maintenance smarter with CM-IWx insulation monitoring relays.

System Voltage	System leakage capacitance
up to 1500 VDC	monitoring up to 3000 µF



Voltage and current monitoring relays
ABB's CM range offers a wide selection of powerful, compact devices for the monitoring of currents and voltages in single-phase AC/DC systems. All come in a housing that is just 22.5 mm wide. This product range includes current and voltage monitoring relays for over- and undercurrent protection, over- and undervoltage protection and phase loss monitoring – from 3 mA to 15 A and from 3 V to 600 V. ABB's CM range gives your electric installation the highest safety and reliability.

System Voltage	Current ratings
up to 600 VDC	Up to 15 A direct



Pilot devices
Reliable, easy to select and to install
ABB pilot devices are engineered for totally reliability. Our products are tested to extremes and proven in the toughest environments. Thier innovative design simplify the entire process, from selection to installation.
Enclosures, signal towers and signal becons complete the portfolio.



EVC I

OFFERING

Offering: Monitoring systems



Circuit monitoring systems
Give your buildings a new dimension
With the rise of digitalization and the Internet of Things (IoT) collection of data from the entire network for analysis becomes easier, enabling optimization of energy usage and assets. From monitoring energy consumption to control of operations and costs, connectivity-based solutions can improve energy efficiency while reducing costs. ABB's portfolio of scalable energy and asset management solutions, including CMS-700, brings this digital transformation into public, commercial and industrial solutions.

Current ratings
up to 160 A



System pro M compact® InSite
Beyond connected, always one step ahead of maintenance. System pro M compact® InSite has been specifically developed to meet requirements of energy and asset management by monitoring and controlling the energy flow in sub distribution boards.

Current ratings
up to 160 A



Current Shunts
ABB offers a wide range of current Shunts for direct current. If current in a circuit is too high to be applied directly to a measuring instrument, a shunt is used to reduce the current accurately proportional to the current in the circuit, which can be conveniently connected to measuring and recording instruments. Explore the full range and discover the most suitable Current Transformers or Shunts for your needs.

Current ratings
10-1000 A range



Digital voltmeter VLMD
A range of 26x72 and modular digital instruments for measuring DC voltage

System Voltage
up to 500 VDC



Building Infrastructure

GENERAL

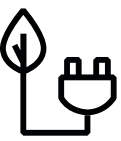
General

Direct current (DC) power is reshaping energy in buildings. An increasing portion of electrical loads in commercial and residential spaces is natively DC. In parallel, DC power sources are becoming more common.

Integrating the two can result in energy savings and greater power quality, reliability and control. At ABB, we are perfectly positioned to support all building infrastructure stakeholders with high quality DC solutions.

Our portfolio, the widest on the market, is comprised of breakthrough products which deliver more for our customers. And our knowledgeable teams can provide you with the advice you require to ensure maximum efficiency and continuous operation, enable digitalization, and enhance safety and protection.

DC advantages



Energy savings
15-20% of total energy losses saved by supplying loads directly in DC or improving converter efficiency by eliminating the rectifier module.



Cost Saving
Up to 30% operational and capital cost savings by developing DC microgrid systems.



Building Infrastructure

OFFERING

Offering: Miniature circuit breaker and Surge Protective Device



S200 M UC range
ABB's Universal Current MCB for DC and AC applications

The S200 M UC range of miniature circuit-breakers features permanent magnets on the internal arcing chutes able to extinguish an electric arc of up to 500 V DC with Icu = 10 kA, thus ensuring flexible control of both direct and alternating currents. Ideal for industry application because of the high breaking capacity of 10 kA.

System Voltage	Current ratings
up to 500 VDC	up to 63 A



SMISSLINE TP
Smisline TP is a pluggable socket system that allows load-free devices and components to be plugged on and off under voltage with no need for additional personal protective equipment to guard against electrical hazards.

S400 M UC MCB for a direct current pluggable solution on the socket system.

System Voltage	Current ratings
up to 440 VDC	MCCB up to 250 A MCB up to 63 A



Building Infrastructure

OFFERING

Offering: Miniature circuit breaker and Surge Protective Device



S800S-UC and S804U-UCZ
Non polarized high performance MCB with breaking capacity of 50kA and 10kA respectively, are suitable in a wide range of DC applications



System Voltage	Current ratings
up to 1500 VDC	up to 125 A



S800PV Ground Fault Detector Interrupter
The S804PV-SP5, S804U-PVS5 and S804U-PVSP5 provide ground fault protection according to IEC60947-2 for 1500 VDC, UL489B for 1000 VDC and UL489B (recognized) for 1500 VDC.

System Voltage	Current ratings
up to 1500 VDC	up to 5 A



Surge Protective Devices OVR PV QS
Combined Type 1 and Type 2 SPD can guarantee an overvoltage reduction to protect end equipment, up to 1500 VDC.

System Voltage
up to 1500 VDC



Building Infrastructure

OFFERING

Offering: Breakers



SACE Tmax T - PV
The SACE Tmax PV range of switch-disconnectors for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	1600 A



SACE Tmax T
A complete range of moulded case circuit-breakers.

All the circuit-breakers, both three-pole and four-pole, are available in the fixed version; sizes T4 and T5 in the plug-in version and T4, T5, T6, also in the withdrawable one.

System Voltage	Current ratings
up to 1000 VDC	250-800 A



SACE Tmax XT
The Tmax XT trip units are designed to be used in a wide range of applications. Thermal-magnetic trip units are suitable for DC networks, these are a solution for protection against both overloads and short-circuits. The new X version assure Icu up to 100 Ka @ 750 VDC.

System Voltage	Current ratings
500 -750 VDC Range	up to 800A



SACE Emax DC
Low voltage Direct Current air circuit breaker
SACE Emax DC is the only air circuit breaker on the market able to protect a DC plant up to 5000A at 1000V DC with integrated electronic trip units, including measuring and communication functions.

System Voltage	Current ratings
up to 1000 VDC	800-5000 A Range



Building Infrastructure

OFFERING

Offering: Switch-disconnectors



Switch disconnecter for DC side isolation
The S800PV-SD provides isolation protection up to 125A and 1500VDC with Icw=1.5kA in accordance with IEC 60947-3 and Annex D. With highly compact design for installation on the DIN rail, the S800PV-SD switch disconnector offers safety relevant isolation properties.

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



Polarized disconnecter for DC side isolation
The S800PV-M-H only available as 2-pole device provides isolation protection up to 100A and 1000VDC with Icw=1.5kA in accordance with IEC 60947-3.

This disconnecter might be small, but it's a giant when it comes to performance. With a nominal current range up to 100A, it covers a large range of applications. At the same time, the compact S802PV-M-H is only 54 mm wide. As a result, space requirement is minimal.

System Voltage	Current ratings
up to 1000 VDC	up to 100 A



OTDC Switch-disconnectors 16...1000A
If operation under load is required, OTDC switch-disconnectors have a robust and high switching performance from 16A to 1000A, up to 1500 Vdc. The utilization categories covered are from DC-21B up to DC-22B and DC-PV2. OTDC Switches allow multi-circuit switching with a small footprint.

OTDC Switches have a high Icw up to 63kA, and have been tested with fuses up to 100kA. They are certified according to DNV GL.

System Voltage	Current ratings
up to 1500 VDC	16-1000 A Range



OT Disconnectors 1600...4000 A, DC-20
OT disconnectors are suitable for applications in DC-20 category that do not require operation under load and where reliable isolation is needed.

OT Disconnectors have a high Icw up to 100kA and impressive max. let-through peak currents. An electrical interlock enables safe operation for users.

System Voltage	Current ratings
up to 1500 VDC	1600-4000 A range



Building Infrastructure

OFFERING

Offering: Switch-disconnectors



Enclosed OTDC switches
OTDCP from 16 to 32 Amperes (IEC60947) offers DC voltage ratings up to 1000Vdc and a control of up to two circuits within the same footprint area. Safety and protection are ensured with IP65 rating and the handle is padlockable.

System Voltage	Current ratings
up to 1000 VDC	up to 32 A



OT manual operated Switch-disconnectors
ABB switch-disconnectors are designed, built and tested for the best possible performance. They are designed to be virtually maintenance-free across their entire extended lifespan and offer reliable performance in any and all possible circumstances. Durability has been ensured by testing switches against the IEC60947- 3, UL508, UL98 and CSA standards.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Change-over switches
ABB offers a wide variety of manually and remotely operated change-over and bypass switches from 16 to 3200 Amperes range. A marine certified range of products available for demanding applications such as secondary source transfer, load transfer or any critical component maintenance bypass arrangement.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Building Infrastructure

OFFERING

Offering: Switch-disconnectors



Tmax XT Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 750 VDC	up to 1250 A



Tmax T ed Emax Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 1000 VDC	up to 6300 A



SACE Tmax T - PV
The SACE Tmax PV range of switch-disconnectors for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	1600 A



Emax 2 MS - 1500V DC
Emax 2 MS/DC-E is the air switch-disconnectors up to 4000A IEC and 3200 A UL, and up to 100kA Icw (1s) withstand current. It is made in compliance with IEC60947-3 annex D (DC-PV2 category), UL 489B, UL489F, and CCC approval.

System Voltage	Current ratings
up to 1500 VDC	up to 4000 A



Building Infrastructure

OFFERING

Offering: Switch-Fuses and Fuse Gear



E90 PV
1000 V DC and 1500 V DC range of fuse holders and fuses
The E90 PV series of fuse holders have been specifically designed for DC applications thanks to their rated voltage of 1000 and 1500 V DC.

System Voltage	Current ratings
up to 1500 VDC	up to 32 A



Fuse bases OFAZ and OFAX
The fuse bases can be used in combination with NH fuse-links according to IEC 60269-2 and DIN VDE 0636-2 and solid links.

Fuse bases offer a compact and simple solution for protection against short-circuit and over-currents. Fuses as protective elements are characterized by galvanically silver plated contacts providing reliable and high performing contact characteristics. OFAZ and OFAX fuse bases are available as open types or fully protected IP20 versions.

System Voltage	Current ratings
up to 1000 VDC	up to 1250 A



Building Infrastructure

OFFERING

Offering: Switch-Fuses and Fuse Gear



OS manual operated Switch Fuses
OS switch fuses offer a world-class performance for demanding marine applications. The OS range includes switch fuses from 20 to 1250 Amperes, available for most common fuses: DIN, BS, NFC, CC, JJ and L types.

OS switch fuses are DNV GL Marine certified and come with a wide range of different accessories such as interlocking and fuse monitoring devices.

System Voltage	Current ratings
up to 1000 VDC	20-1250 A Range



EasyLine - XLP Fuse switch-disconnectors
EasyLine range of fuse switch-disconnectors ensures high protection and reliable operation from 160A to 630A. Variants up to 440Vdc are available as 1- or 2-pole design.

System Voltage	Current ratings
up to 440 VDC	160-630 A range



SlimLine XR Gold (XRG)
The SlimLine XRG, switch-disconnector fuse drives exceptional energy efficiency, reducing temperature rise and enabling higher performance across the panel board. Stacking of the devices reduces the floor space up to 40%.

System Voltage	Current ratings
up to 500 VDC	125-630 A range



Building Infrastructure

OFFERING

Offering: Contactors



Contactors for DC switching
For a compact and efficient way of DC switching
GF, GAF and GA contactors are specifically designed for switching DC circuits up to 1500 V. Thanks to the efficient breaking of DC circuits, the product range is one of the most compact on the market for applications such as PV Solar, EV charging, UPS and Energy storage systems.

Type	System Voltage	Current ratings
GF	up to 1500 VDC	875 -1325 A Range
GAF	up to 1000 VDC	250-2050 A Range
GA	up to 1000 VDC	35-120 A Range



Motor protection and control
ABBs standard AF contactor range can also be used for switching DC from 850 V DC and below. To keep it running, you need Control ABB’s motor protection and control offering is among the widest on the market our comprehensive range of motor starting solutions, products and services delivers the certainty of consistent quality and performance.

System Voltage	Current ratings
220 -850 VDC Range	16-2650 A Range



Installation contactors
ABB’s hum-free installation contactor designs offer a wide range of ratings from 16 A to 100 A. Widely used in buildings for switching and controlling lighting, heating, ventilation, motor and pumps, the installation contactors take noise reduction to a new level. With an innovative AC/DC design that eliminates hum, a selection of tool-free accessories as well as manual and automatic versions.

System Voltage	Current ratings
up to 220 VDC	up to 100 A



Contactor relays for auxiliary circuit switching
ABB’s contactor relays offering features products of technological advancement as well as products with specific purposes. NF contactor relays allow use in all parts of the world and in all network conditions. The mini contactor relays range offer various contact combinations and specific connection possibilities. The AS contactor relays are efficient and allow you to optimize your equipment design.applications.

System Voltage	Current ratings
up to 600 VDC	up to 1 A



Building Infrastructure

OFFERING

Offering: Electronic relays and controls



CP-D power supplies
Power supplies to fit any panel
ABB’s CP-D range of power supply units with its modular DIN rail component (MRDC) design fits all domestic installation and distribution panels.

System Voltage	Current ratings
Input: 120-375 V DC output: 12 V, 24 V DC	0.42 A / 0.83 A / 1.3 A / 2.1 A / 2.5 A / 4.2 A



CP-E power supplies
Power supplies with enhanced functionality
ABB’s CP-E range offers enhanced functionality and a simpler, more rational selection process. All power supply units can be operated at an ambient temperature of up to +70 °C.

System Voltage	Current ratings
Input: 90-375 V DC output: 5V, 12 V, 24 V, 48 V DC	0.625 A / 0.75 A / 1.25 A / 2.5 A / 3 A / 5 A / 10 A / 20 A



CP-C.1 power supplies
ABB’s high-performance CP-C.1 power supplies for demanding industrial applications deliver high efficiency, high reliability and innovative functionality. This advanced range of power supplies has an integrated power reserve of up to 150% continuously and operate at an efficiency of up to 94 %.

System Voltage	Current ratings
Input: 90-300 V DC output: 24 VDC	5 A / 10 A / 20 A



CP-T power supplies
Advanced three-phase power supply units
ABB’s CP-T range of three-phase power supply units perfectly complement existing power supply offering in terms of design and functionality, giving you more advanced options for your three-phase applications.

System Voltage	Current ratings
Input: 480-820 V DC output: 24 V, 48 V DC	5 A / 10 A / 20 /40 A



Building Infrastructure

OFFERING

Offering: Electronic relays and controls



CP-B power supplies
Ultracapacitor-based buffering units
ABB's ultra-capacitor based CP-B buffer modules serve to ensure a shortterm uninterrupted power supply system with a voltage of 24 V DC by buffering the load in case of power loss.
The buffer modules feature a new technology of storing energy by using ultra-capacitors which entirely obviate the need for maintenance and exempt deep discharge in comparison to batteries.

System Voltage	Current ratings
Input: 24 V DC output: 24 VDC	3 A / 10 A / 20 A



Insulation monitoring relays for IT systems
ABB's CM-IWx insulation monitoring relays for IT systems provide continuous, reliable monitoring. The devices recognize insulation faults as they develop, tripping as soon as the value falls below minimum set thresholds. This makes systems more reliable and prevents interruptions caused by severe secondary insulation faults. Make your monitoring more secure and your maintenance smarter with CM-IWx insulation monitoring relays.

System Voltage	System leakage capacitance
up to 1500 VDC	monitoring up to 3000 µF



Voltage and current monitoring relays
ABB's CM range offers a wide selection of powerful, compact devices for the monitoring of currents and voltages in single-phase AC/DC systems. All come in a housing that is just 22.5 mm wide. This product range includes current and voltage monitoring relays for over- and undercurrent protection, over- and undervoltage protection and phase loss monitoring – from 3 mA to 15 A and from 3 V to 600 V. ABB's CM range gives your electric installation the highest safety and reliability.

System Voltage	Current ratings
up to 600 VDC	Up to 15 A direct



Pilot devices
Reliable, easy to select and to install
ABB pilot devices are engineered for totally reliability. Our products are tested to extremes and proven in the toughest environments. Thier innovative design simplify the entire process, from selection to installation. Enclosures, signal towers and signal becons complete the portfolio.



Building Infrastructure

OFFERING

Offering: Monitoring systems



Circuit monitoring systems
Give your buildings a new dimension
With the rise of digitalization and the Internet of Things (IoT) collection of data from the entire network for analysis becomes easier, enabling optimization of energy usage and assets. From monitoring energy consumption to control of operations and costs, connectivity-based solutions can improve energy efficiency while reducing costs. ABB's portfolio of scalable energy and asset management solutions, including CMS-700, brings this digital transformation into public, commercial and industrial solutions.

Current ratings
up to 160 A



System pro M compact® InSite
Beyond connected, always one step ahead of maintenance. System pro M compact® InSite has been specifically developed to meet requirements of energy and asset management by monitoring and controlling the energy flow in sub distribution boards.

Current ratings
up to 160 A



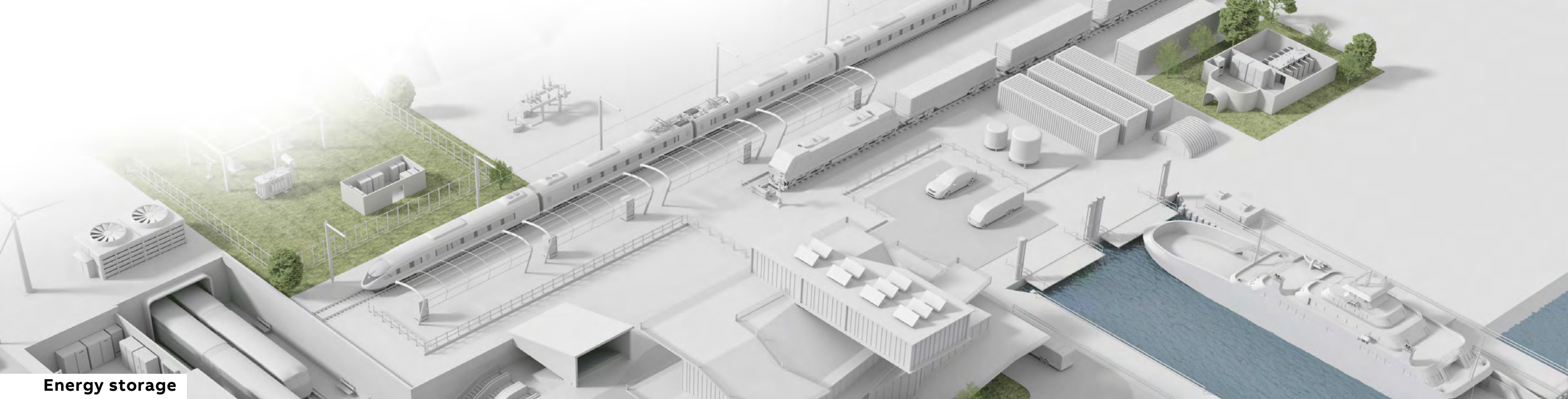
Current Shunts
ABB offers a wide range of current Shunts for direct current. If current in a circuit is too high to be applied directly to a measuring instrument, a shunt is used to reduce the current accurately proportional to the current in the circuit, which can be conveniently connected to measuring and recording instruments. Explore the full range and discover the most suitable Current Transformers or Shunts for your needs.

Current ratings
10-1000 A range



Digital voltmeter VLMD
A range of 26x72 and modular digital instruments for measuring DC voltage

System Voltage
up to 500 VDC



Energy storage

GENERAL

General

Utility scale energy storage systems (ESS) are in high demand, driven by the increasing need for renewable energy integration, voltage frequency regulation and the capability to quickly inject/ adsorb power.

Direct current (DC) ESS offer real efficiencies, increasing power quality and resiliency at lower cost.

At ABB, we are perfectly positioned to support all ESS stakeholders with high quality DC solutions.

Our portfolio, the widest on the market, is comprised of breakthrough products which deliver more for our customers. We'll work together with you to select the right, easy to install solutions for maximum efficiency, continuous operation and enhanced safety and protection.

DC advantages



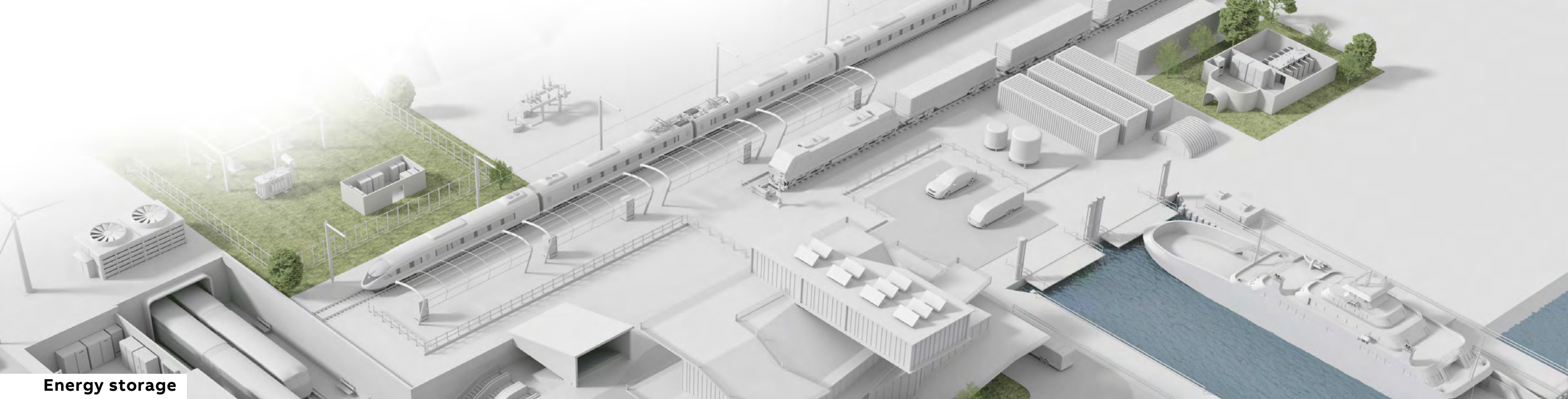
Energy efficiency
Global energy storage to hit 158 gigawatt hours by 2024, a thirteenfold increase in grid scale storage over the next six years.



Sustainability
The commercial and industrial sector is increasingly adopting renewable power generation sources and energy storage systems.



Cost Saving
Depending on the application, costs have declined 74 percent since 2013 and are projected to continue a steady 8 percent per year decline through the mid 2020s.



Energy storage

OFFERING

Offering: Miniature circuit breaker, Surge Protective Device, Breakers



S200 M UC range
ABB's Universal Current MCB for DC and AC applications

The S200 M UC range of miniature circuit-breakers features permanent magnets on the internal arcing chutes able to extinguish an electric arc of up to 500 V DC with Icu = 10 kA, thus ensuring flexible control of both direct and alternating currents. Ideal for industry application because of the high breaking capacity of 10 kA.

System Voltage	Current ratings
up to 500 VDC	up to 63 A



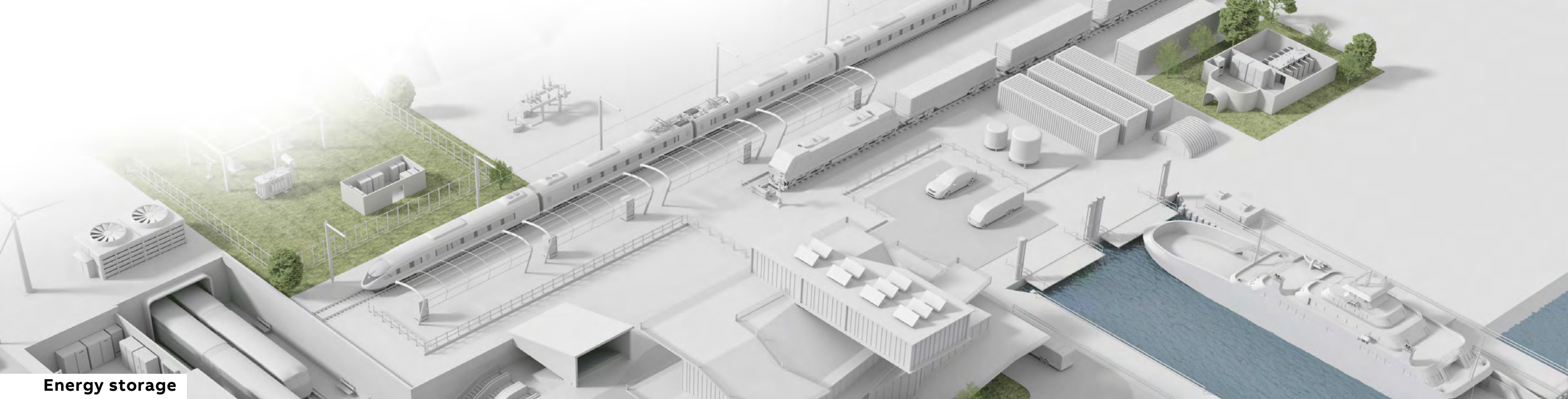
High performance MCB S800-S UC/ PV
Non polarized high performance MCB with breaking capacity up to 50 kA are suitable in a wide range of DC applications

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



Surge Protective Devices OVR PV QS
Combined Type 1 and Type 2 SPD can guarantee an overvoltage reduction to protect end equipment, up to 1500 VDC.

System Voltage
up to 1500 VDC



Energy storage

OFFERING

Offering: Breakers



SACE Tmax T - PV
The SACE Tmax PV range of switch-disconnectors for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	1600 A



SACE Tmax T
A complete range of moulded case circuit-breakers.

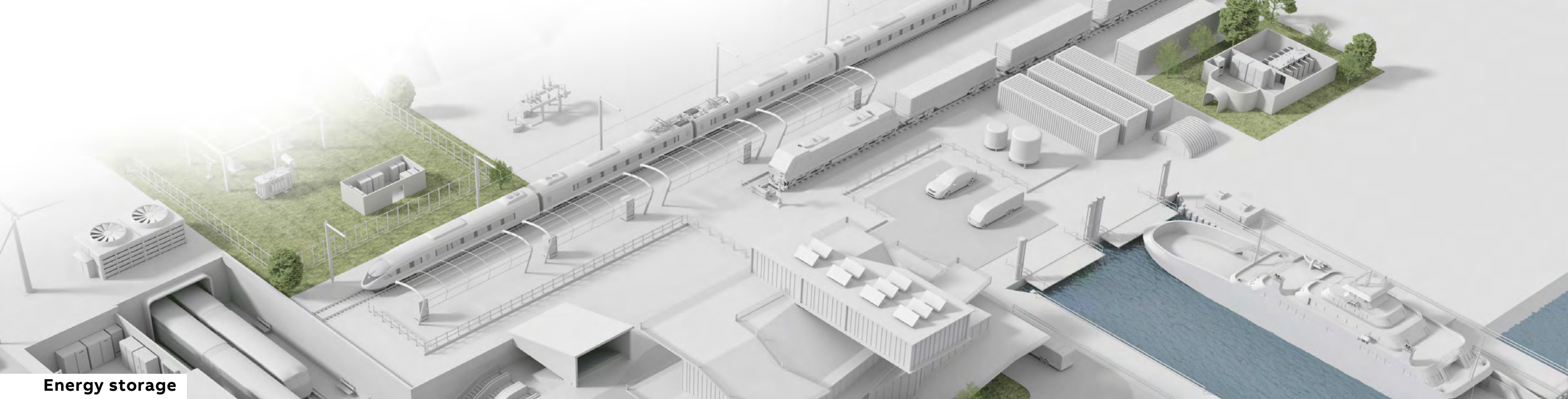
All the circuit-breakers, both three-pole and four-pole, are available in the fixed version; sizes T4 and T5 in the plug-in version and T4, T5, T6, also in the withdrawable one.

System Voltage	Current ratings
up to 1000 VDC	250-800 A



SACE Tmax XT
The Tmax XT trip units are designed to be used in a wide range of applications. Thermal-magnetic trip units are suitable for DC networks, these are a solution for protection against both overloads and short-circuits. The new X version assure Icu up to 100 Ka @ 750 VDC.

System Voltage	Current ratings
500 -750 VDC Range	up to 800A



Energy storage

OFFERING

Offering: Breakers



SACE Emax DC
Low voltage Direct Current air circuit breaker
SACE Emax DC is the only air circuit breaker on the market able to protect a DC plant up to 5000A at 1000V DC with integrated electronic trip units, including measuring and communication functions.

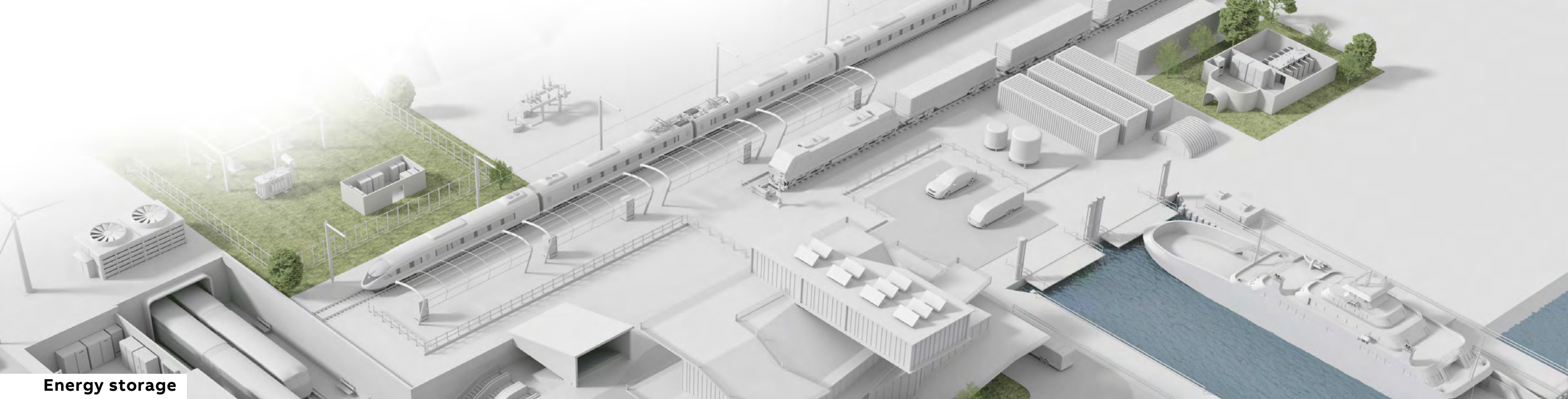
System Voltage	Current ratings
up to 1000 VDC	800-5000 A Range



Concept, product not for sales.
For more information contact us.

Solid state circuit breaker
Concept
A technological breakthrough by ABB – solid-state circuit breaker – will enhance performance of renewable energy solutions, industrial battery storage solutions and so-called edge grids.

System Voltage	Current ratings
up to 1250 VDC	2500 A



Energy storage

OFFERING

Offering: Switch-disconnectors



OTDC Switch-disconnectors 16...1000A
If operation under load is required, OTDC switch-disconnectors have a robust and high switching performance from 16A to 1000A, up to 1500 Vdc. The utilization categories covered are from DC-21B up to DC-22B and DC-PV2. OTDC Switches allow multi-circuit switching with a small footprint.

OTDC Switches have a high I_{cu} up to 63kA, and have been tested with fuses up to 100kA. They are certified according to DNV GL.

System Voltage	Current ratings
up to 1500 VDC	16-1000 A Range



OT Disconnectors 1600...4000 A, DC-20
OT disconnectors are suitable for applications in DC-20 category that do not require operation under load and where reliable isolation is needed.

OT Disconnectors have a high I_{cu} up to 100kA and impressive max. let-through peak currents. An electrical interlock enables safe operation for users.

System Voltage	Current ratings
up to 1500 VDC	1600-4000 A range



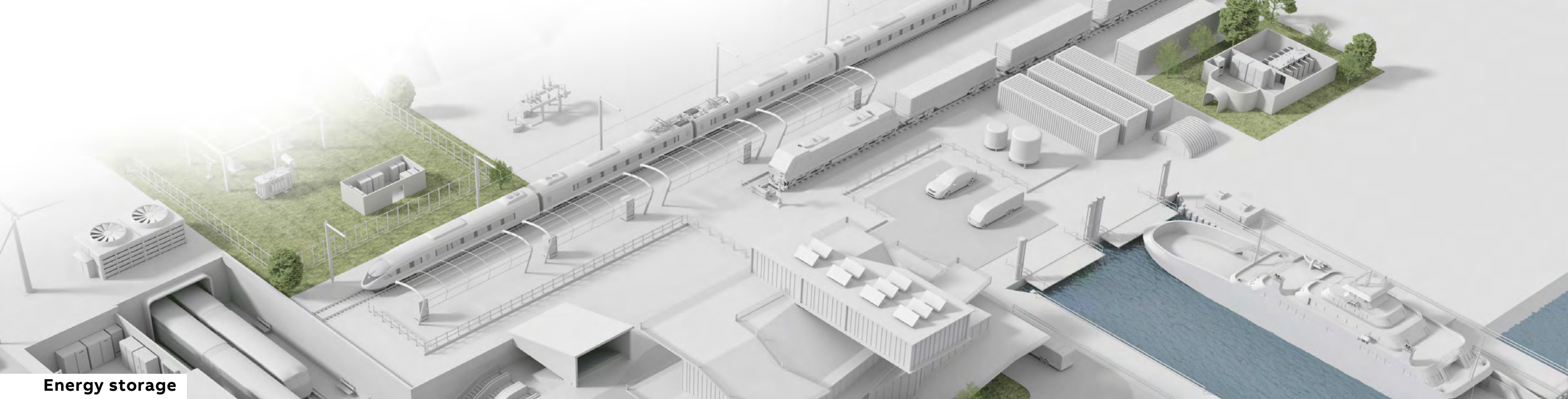
OT manually operated Switch-disconnectors
ABB switch-disconnectors are designed, built and tested for the best possible performance. They are designed to be virtually maintenance-free across their entire extended lifespan and offer reliable performance in any and all possible circumstances. Durability has been ensured by testing switches against the IEC60947- 3, UL508, UL98 and CSA standards.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Change-over switches
ABB offers a wide variety of manually and remotely operated change-over and bypass switches from 16 to 3200 Amperes range. A marine certified range of products available for demanding applications such as secondary source transfer, load transfer or any critical component maintenance bypass arrangement.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Energy storage

OFFERING

Switch disconnecter for DC side isolation



Switch disconnecter for DC side isolation
The S800PV-SD provides isolation protection up to 125A and 1500VDC with Icw=1.5kA in accordance with IEC 60947-3 and Annex D. With highly compact design for installation on the DIN rail, the S800PV-SD switch disconnecter offers safety relevant isolation properties.

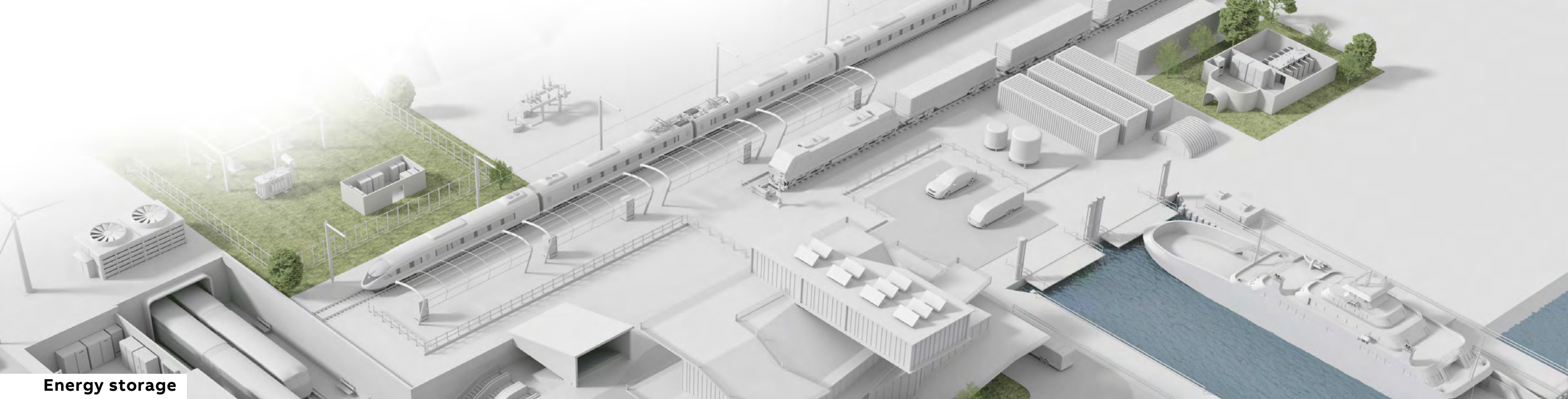
System Voltage	Current ratings
up to 1500 VDC	up to 125 A



Polarized disconnecter for DC side isolation
The S800PV-M-H only available as 2-pole device provides isolation protection up to 100A and 1000VDC with Icw=1.5kA in accordance with IEC 60947-3.

This disconnecter might be small, but it's a giant when it comes to performance. With a nominal current range up to 100A, it covers a large range of applications. At the same time, the compact S802PV-M-H is only 54 mm wide. As a result, space requirement is minimal.

System Voltage	Current ratings
up to 1000 VDC	up to 100 A



Energy storage

OFFERING

Offering: Switch-disconnectors



Tmax XT Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 750 VDC	up to 1250 A



Tmax T ed Emax Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 1000 VDC	up to 6300 A



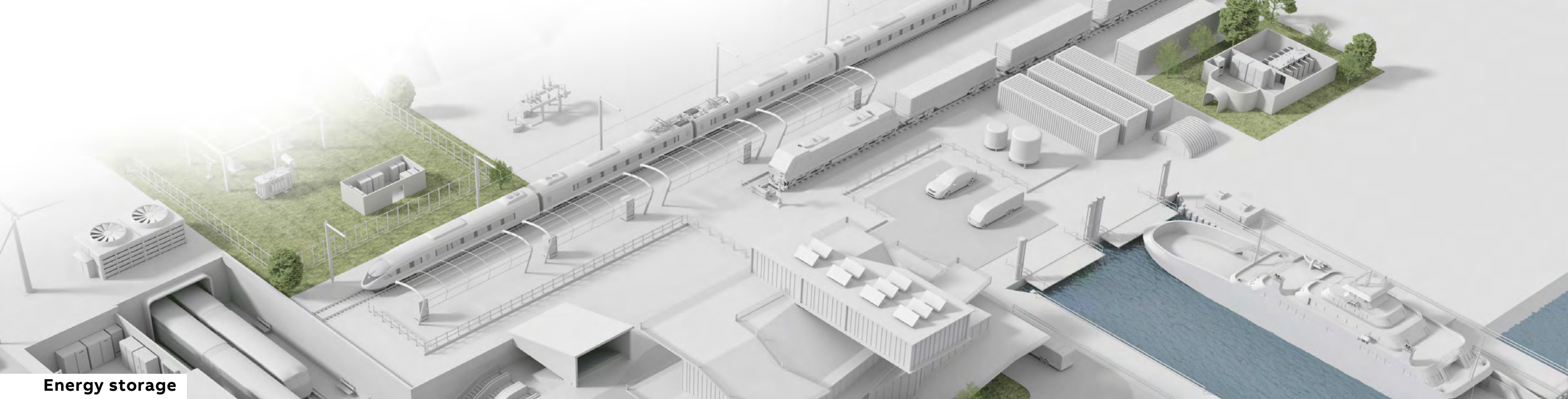
SACE Tmax T - PV
The SACE Tmax PV range of switch-disconnectors for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	1600 A



Emax 2 MS - 1500V DC
Emax 2 MS/DC-E is the air switch-disconnectors up to 4000A IEC and 3200 A UL, and up to 100kA Icw (1s) withstand current. It is made in compliance with IEC60947-3 annex D (DC-PV2 category), UL 489B, UL489F, and CCC approval.

System Voltage	Current ratings
up to 1500 VDC	up to 4000 A



Energy storage

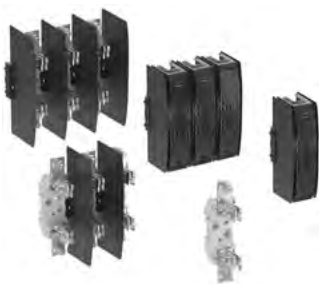
OFFERING

Offering: Switch-Fuses and Fuse Gear



E90 PV
1000 V DC and 1500 V DC range of fuse holders and fuses
The E90 PV series of fuse holders have been specifically designed for DC applications thanks to their rated voltage of 1000 and 1500 V DC.

System Voltage	Current ratings
up to 1500 VDC	up to 32 A



Fuse bases OFAZ and OFAX
The fuse bases can be used in combination with NH fuse-links according to IEC 60269-2 and DIN VDE 0636-2 and solid links.

Fuse bases offer a compact and simple solution for protection against short-circuit and over-currents. Fuses as protective elements are characterized by galvanically silver plated contacts providing reliable and high performing contact characteristics. OFAZ and OFAX fuse bases are available as open types or fully protected IP20 versions.

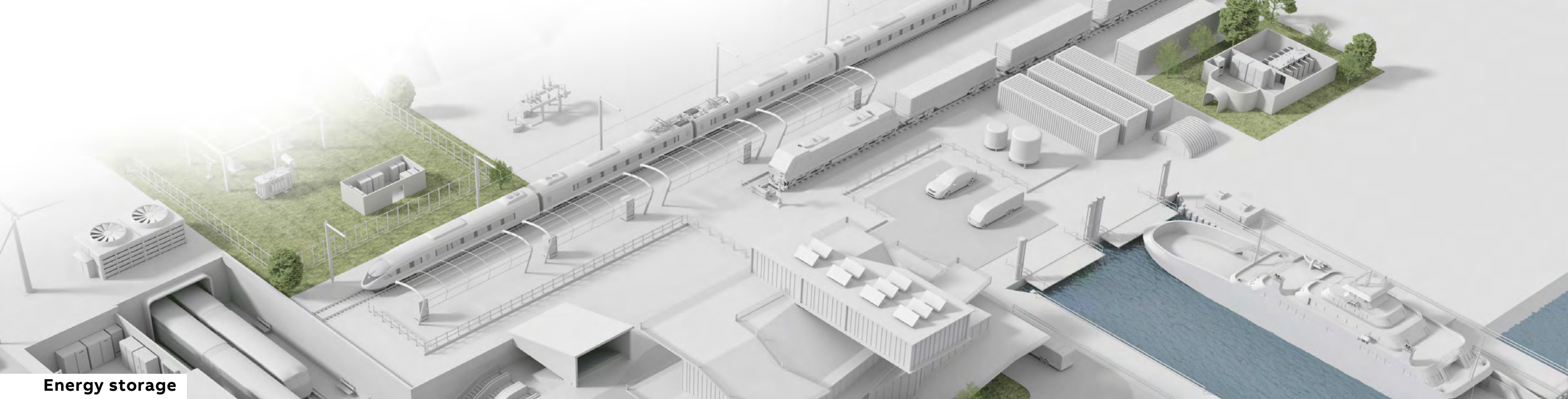
System Voltage	Current ratings
up to 1000 VDC	up to 1250 A



OS manual operated Switch Fuses
OS switch fuses offer a world-class performance for demanding marine applications. The OS range includes switch fuses from 20 to 1250 Amperes, available for most common fuses: DIN, BS, NFC, CC, JJ and L types.

OS switch fuses are DNV GL Marine certified and come with a wide range of different accessories such as interlocking and fuse monitoring devices.

System Voltage	Current ratings
up to 1000 VDC	20-1250 A Range



Energy storage

OFFERING

Offering: Contactors



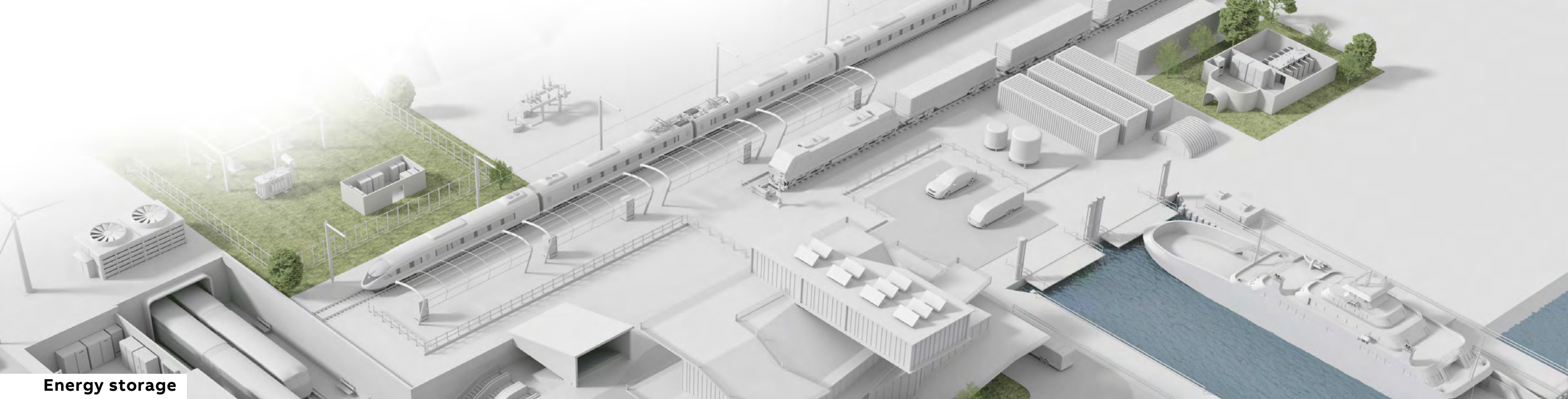
Contactors for DC switching
For a compact and efficient way of DC switching
GF, GAF and GA contactors are specifically designed for switching DC circuits up to 1500 V. Thanks to the efficient breaking of DC circuits, the product range is one of the most compact on the market for applications such as PV Solar, EV charging, UPS and Energy storage systems.

Type	System Voltage	Current ratings
GF	up to 1500 VDC	875 -1325 A Range
GAF	up to 1000 VDC	250-2050 A Range
GA	up to 1000 VDC	35-120 A Range



Motor protection and control
ABBs standard AF contactor range can also be used for switching DC from 850 V DC and below. To keep it running, you need Control ABB’s motor protection and control offering is among the widest on the market our comprehensive range of motor starting solutions, products and services delivers the certainty of consistent quality and performance.

System Voltage	Current ratings
220 -850 VDC Range	16-2650 A Range



Energy storage

OFFERING

Offering: Electronic relays and controls



CP-E power supplies
Power supplies with enhanced functionality
ABB's CP-E range offers enhanced functionality and a simpler, more rational selection process. All power supply units can be operated at an ambient temperature of up to +70 °C.

System Voltage	Current ratings
Input: 90-375 V DC output: 5V, 12 V, 24 V, 48 V DC	0.625 A / 0.75 A / 1.25 A / 2.5 A / 3 A / 5 A / 10 A / 20 A



CP-C.1 power supplies
ABB's high-performance CP-C.1 power supplies for demanding industrial applications deliver high efficiency, high reliability and innovative functionality. This advanced range of power supplies has an integrated power reserve of up to 150% continuously and operate at an efficiency of up to 94 %.

System Voltage	Current ratings
Input: 90-300 V DC output: 24 VDC	5 A / 10 A / 20 A



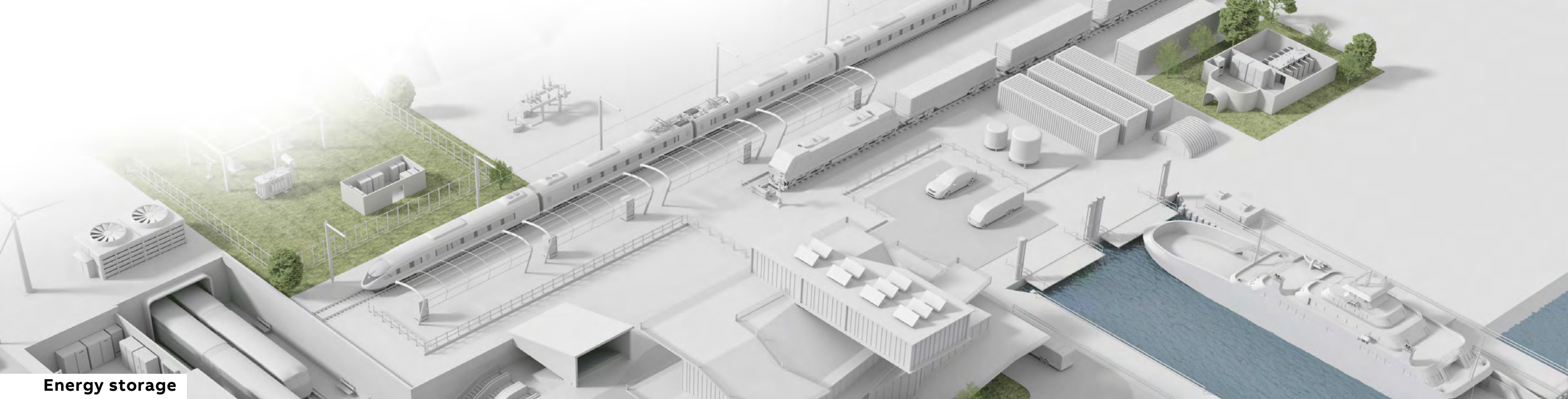
CP-T power supplies
Advanced three-phase power supply units
ABB's CP-T range of three-phase power supply units perfectly complement existing power supply offering in terms of design and functionality, giving you more advanced options for your three-phase applications.

System Voltage	Current ratings
Input: 480-820 V DC output: 24 V, 48 V DC	5 A / 10 A / 20 /40 A



CP-B power supplies
Ultracapacitor-based buffering units
ABB's ultra-capacitor based CP-B buffer modules serve to ensure a shortterm uninterrupted power supply system with a voltage of 24 V DC by buffering the load in case of power loss. The buffer modules feature a new technology of storing energy by using ultra-capacitors which entirely obviate the need for maintenance and exempt deep discharge in comparison to batteries.

System Voltage	Current ratings
Input: 24 V DC output: 24 VDC	3 A / 10 A / 20 A



Energy storage

OFFERING

Offering: Electronic relays and controls



Insulation monitoring relays for IT systems
ABB's CM-IWx insulation monitoring relays for IT systems provide continuous, reliable monitoring. The devices recognize insulation faults as they develop, tripping as soon as the value falls below minimum set thresholds. This makes systems more reliable and prevents interruptions caused by severe secondary insulation faults. Make your monitoring more secure and your maintenance smarter with CM-IWx insulation monitoring relays.

System Voltage	System leakage capacitance
up to 1500 VDC	monitoring up to 3000 µF



Voltage and current monitoring relays
ABB's CM range offers a wide selection of powerful, compact devices for the monitoring of currents and voltages in single-phase AC/DC systems. All come in a housing that is just 22.5 mm wide. This product range includes current and voltage monitoring relays for over- and undercurrent protection, over- and undervoltage protection and phase loss monitoring – from 3 mA to 15 A and from 3 V to 600 V. ABB's CM range gives your electric installation the highest safety and reliability.

System Voltage	Current ratings
up to 600 VDC	Up to 15 A direct



Pilot devices
Reliable, easy to select and to install
ABB pilot devices are engineered for totally reliability. Our products are tested to extremes and proven in the toughest environments. Thier innovative design simplify the entire process, from selection to installation. Enclosures, signal towers and signal becons complete the portfolio.



Solar

GENERAL

General

ABB provides the most comprehensive portfolio of products, systems and solutions along the solar PV value chain that enable the generation, transmission and distribution of solar power for both on-grid and off-grid applications.

The ABB product range includes circuit breakers, switch disconnectors, fuse disconnectors, fuses, residual current-operated circuit-breakers, grid connection relays, metering devices, surge arresters, voltage & current sensors, remote switching contactors, consumer units and enclosures suitable for outdoor installation, all specially designed for these applications.

ABB can also provide a series of “plug & play” solutions, i.e. finished, wired and certified string/combiner boxes able to suit the requirements of a vast range of installations: from individual strings for residential applications to large photovoltaic plants.

DC advantages



Continuous operation

Keeping priority loads running during an utility outage is crucial for business continuity.



Global availability

Having the ability to streamline operations and serve multiple markets are survival factors in such a competitive market.



Speed up your projects

An optimized manufacturing operation can provide that extra advantage needed to secure projects.



Offering: Miniature circuit breaker and Surge Protective Device



High-performance string protection MCB

The S800PV-SP provides string protection up to 125A and 1500VDC with Icu=5kA in accordance with IEC 60947-2 and Annex P.

The High-Performance MCB S800PV-SP specially developed for use in photovoltaic systems offers reliable protection for PV modules and lines against reverse currents from defective strings and AC regenerative feedback due to defective inverters. of G2C series.

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



F200 B Type

Built to make the difference
The F200 Type B are universal current sensitive residual current circuit breakers RCCBs designed for industrial applications where there is an increasing use of devices like frequency converters, medical equipment's and UPS systems. The RCCB Type B protect faults occurred due to smooth DC residual currents or currents with low residual ripple which are common in the above applications.

System Voltage	Current ratings
up to 400 VAC.	up to 125 A



S800PV Ground Fault Detector Interrupter

The S804PV-SP5, S804U-PVS5 and S804U-PVSP5 provide ground fault protection.
S800PV is used for GFDI application (Ground-Fault Detector Interrupter) in photovoltaic systems. The S804PV-SP5, S804U-PVS5 and S804U-PVSP5 provide ground fault protection according to IEC60947-2 for 1500 VDC, UL489B for 1000 VDC and UL489B (recognized) for 1500 VDC. In case of a ground fault, the breaker will trip, so that the PV generator will not be damaged.

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



Surge Protective Devices OVR PV QS range

A range especially designed to deal with the specificity of the photovoltaic installations, DC side
As installed outside, PV systems are subject to overvoltages coming from atmospheric discharges.

Further to the existing OVR PV T2 QS SPD series, ABB completes the offer by integrating the series of SPD OVR PV T1-T2 QS to extend the solution for locations with and without external Lightning Protection.

System Voltage
up to 1500 VDC



Solar

OFFERING

Offering: Breakers



SACE Tmax T
A complete range of moulded case circuit-breakers.

All the circuit-breakers, both three-pole and four-pole, are available in the fixed version; sizes T4 and T5 in the plug-in version and T4, T5, T6, also in the withdrawable one.

System Voltage	Current ratings
up to 1000 VDC	250-800 A



SACE Tmax XT
The Tmax XT trip units are designed to be used in a wide range of applications. Thermal-magnetic trip units are suitable for DC networks, these are a solution for protection against both overloads and short-circuits. The new X version assure Icu up to 100 Ka @ 750 VDC.

System Voltage	Current ratings
500 -750 VDC Range	up to 800A



SACE Emax DC
Low voltage Direct Current air circuit breaker
SACE Emax DC is the only air circuit breaker on the market able to protect a DC plant up to 5000A at 1000V DC with integrated electronic trip units, including measuring and communication functions.

System Voltage	Current ratings
up to 1000 VDC	800-5000 A Range



Concept, product not for sales. For more information contact us.

Solid state circuit breaker Concept
A technological breakthrough by ABB – solid-state circuit breaker – will enhance performance of renewable energy solutions, industrial battery storage solutions and so-called edge grids.

System Voltage	Current ratings
up to 1250 VDC	2500 A



Solar

OFFERING

Offering: Switch-disconnectors



Switch disconnector for DC side isolation of PV systems

The S800PV-SD provides isolation protection up to 125A and 1500VDC with Icw=1.5kA in accordance with IEC 60947-3 and Annex D. With highly compact design for installation on the DIN rail, the S800PV-SD switch disconnector offers safety relevant isolation properties. As master switch for PV systems, the whole DC side can thus be safely isolated – locally or remote.

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



Polarized disconnector for DC side isolation of PV systems

The S800PV-M-H only available as 2-pole device provides isolation protection up to 100A and 1000VDC with Icw=1.5kA in accordance with IEC 60947-3.

This disconnector might be small, but it's a giant when it comes to performance. With a nominal current range up to 100A, it covers a large range of applications. At the same time, the compact S802PV-M-H is only 54 mm wide. As a result, space requirement is minimal.

System Voltage	Current ratings
up to 1000 VDC	up to 100 A



OTDC Switch-disconnectors 16...1000A

If operation under load is required, OTDC switch-disconnectors have a robust and high switching performance from 16A to 1000A, up to 1500 Vdc. The utilization categories covered are from DC-21B up to DC-22B and DC-PV2. OTDC Switches allow multi-circuit switching with a small footprint.

OTDC Switches have a high Icw up to 63kA, and have been tested with fuses up to 100kA. They are certified according to DNV GL.

System Voltage	Current ratings
up to 1500 VDC	16-1000 A Range



OT Disconnectors 1600...4000 A, DC-20

OT disconnectors are suitable for applications in DC-20 category that do not require operation under load and where reliable isolation is needed.

OT Disconnectors have a high Icw up to 100kA and impressive max. let-through peak currents. An electrical interlock enables safe operation for users.

System Voltage	Current ratings
up to 1500 VDC	1600-4000 A range



Solar

OFFERING

Offering: Switch-disconnectors



Tmax XT Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 750 VDC	up to 1250 A



Tmax T ed Emax Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 1000 VDC	up to 6300 A



SACE Tmax T - PV
The SACE Tmax PV range of switch-disconnectors for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	1600 A



Emax 2 MS - 1500V DC
Emax 2 MS/DC-E is the air switch-disconnectors up to 4000A IEC and 3200 A UL, and up to 100kA Icw (1s) withstand current. It is made in compliance with IEC60947-3 annex D (DC-PV2 category), UL 489B, UL489F, and CCC approval.

System Voltage	Current ratings
up to 1500 VDC	up to 4000 A








Solar

OFFERING


Offering: Switch-Fuses and Fuse Gear





E90 PV
1000 V DC and 1500 V DC range of fuse holders and fuses The E90 PV series of fuse holders have been specifically designed for photovoltaic applications. Thanks to their rated voltage of 1000 and 1500 V DC.



System Voltage	Current ratings
up to 1500 VDC	up to 32 A





Fuse bases OFAZ and OFAX
The fuse bases can be used in combination with NH fuse-links according to IEC 60269-2 and DIN VDE 0636-2 and solid links.

Fuse bases offer a compact and simple solution for protection against short-circuit and over-currents. Fuses as protective elements are characterized by galvanically silver plated contacts providing reliable and high performing contact characteristics. OFAZ and OFAX fuse bases are available as open types or fully protected IP20 versions.

System Voltage	Current ratings
up to 1000 VDC	up to 1250 A





OS manual operated Switch Fuses
OS switch fuses offer a world-class performance for demanding marine applications. The OS range includes switch fuses from 20 to 1250 Amperes, available for most common fuses: DIN, BS, NFC, CC, JJ and L types.

OS switch fuses are DNV GL Marine certified and come with a wide range of different accessories such as interlocking and fuse monitoring devices.

System Voltage	Current ratings
up to 1000 VDC	20-1250 A Range



Offering: Contactors



Contactors for DC switching
For a compact and efficient way of DC switching
GF, GAF and GA contactors are specifically designed for switching DC circuits up to 1500 V. Thanks to the efficient breaking of DC circuits, the product range is one of the most compact on the market for applications such as PV Solar, EV charging, UPS and Energy storage systems.

Type	System Voltage	Current ratings
GF	up to 1500 VDC	875 -1325 A Range
GAF	up to 1000 VDC	250-2050 A Range
GA	up to 1000 VDC	35-120 A Range



Motor protection and control
ABBs standard AF contactor range can also be used for switching DC from 850 V DC and below. To keep it running, you need Control ABB’s motor protection and control offering is among the widest on the market our comprehensive range of motor starting solutions, products and services delivers the certainty of consistent quality and performance.

System Voltage	Current ratings
220 -850 VDC Range	16-2650 A Range



CP-E power supplies
Power supplies with enhanced functionality
ABB’s CP-E range offers enhanced functionality and a simpler, more rational selection process. All power supply units can be operated at an ambient temperature of up to +70 °C.

System Voltage	Current ratings
Input: 90-375 V DC output: 5V, 12 V, 24 V, 48 V DC	0.625 A / 0.75 A / 1.25 A / 2.5 A / 3 A / 5 A / 10 A / 20 A



CP-C.1 power supplies
ABB’s high-performance CP-C.1 power supplies for demanding industrial applications deliver high efficiency, high reliability and innovative functionality. This advanced range of power supplies has an integrated power reserve of up to 150% continuously. and operate at an efficiency of up to 94 %.

System Voltage	Current ratings
Input: 90-300 V DC output: 24 VDC	5 A / 10 A / 20 A



Solar

OFFERING

Offering: Electronic relays and controls



CP-T power supplies
Advanced three-phase power supply units
ABB's CP-T range of three-phase power supply units perfectly complement existing power supply offering in terms of design and functionality, giving you more advanced options for your three-phase applications.

System Voltage	Current ratings
Input: 480-820 V DC output: 24 V, 48 V DC	5 A / 10 A / 20 / 40 A



CP-B power supplies
Ultracapacitor-based buffering units
ABB's ultra-capacitor based CP-B buffer modules serve to ensure a shortterm uninterrupted power supply system with a voltage of 24 V DC by buffering the load in case of power loss. The buffer modules feature a new technology of storing energy by using ultra-capacitors which entirely obviate the need for maintenance and exempt deep discharge in comparison to batteries.

System Voltage	Current ratings
Input: 24 V DC output: 24 VDC	3 A / 10 A / 20 A



Insulation monitoring relays for IT systems
ABB's CM-IWx insulation monitoring relays for IT systems provide continuous, reliable monitoring. The devices recognize insulation faults as they develop, tripping as soon as the value falls below minimum set thresholds. This makes systems more reliable and prevents interruptions caused by severe secondary insulation faults. Make your monitoring more secure and your maintenance smarter with CM-IWx insulation monitoring relays.

System Voltage	System leakage capacitance
up to 1500 VDC	monitoring up to 3000 µF



Solar

OFFERING

Offering: Monitoring systems



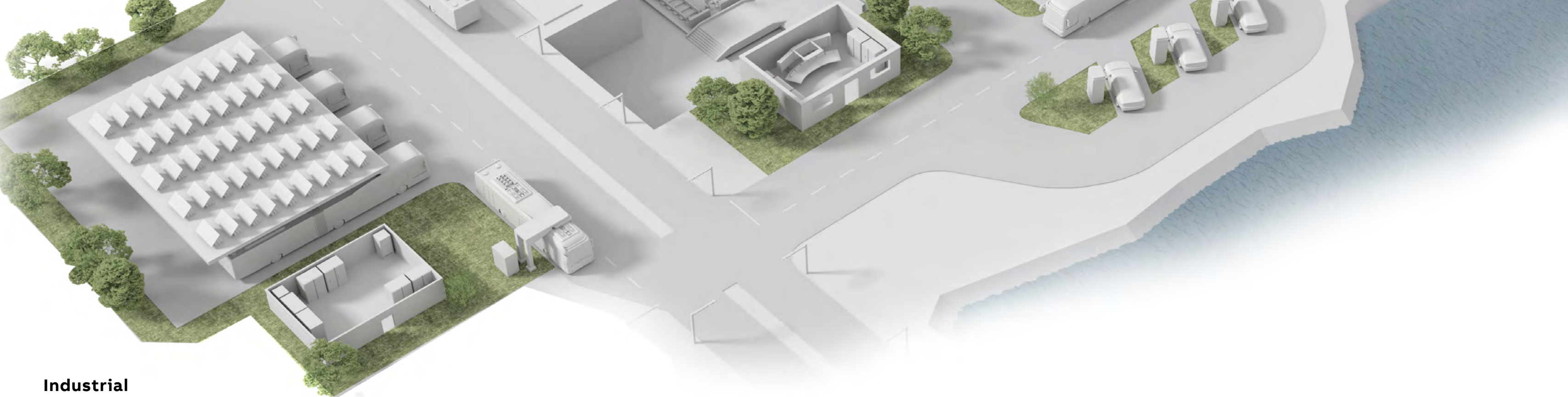
Circuit monitoring systems
Give your buildings a new dimension
With the rise of digitalization and the Internet of Things (IoT) collection of data from the entire network for analysis becomes easier, enabling optimization of energy usage and assets. From monitoring energy consumption to control of operations and costs, connectivity-based solutions can improve energy efficiency while reducing costs. ABB's portfolio of scalable energy and asset management solutions, including CMS-700, brings this digital transformation into public, commercial and industrial solutions.

Current ratings
up to 160 A



System pro M compact® InSite
Beyond connected, always one step ahead of maintenance.
System pro M compact® InSite has been specifically developed to meet requirements of energy and asset management by monitoring and controlling the energy flow in sub distribution boards.

Current ratings
up to 160 A



Industrial

GENERAL

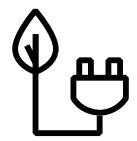
General

DC power has been used in industrial applications such as electrolysis plants, electric arc furnaces, welding machines and DC motors for winches and reels for many years. But now the way in which DC power is being implemented is changing.

There is an exciting opportunity to transform traditional DC power uses and maximize energy efficiency by adopting new approaches and technologies such as DC distribution. At ABB, we are perfectly positioned to support all industrial stakeholders with high quality DC solutions, whether that’s advising on new distribution options or at a product level, finding the best fit for your equipment.

Our portfolio, the widest on the market, is comprised of breakthrough products which deliver more for our customers. We’ll work together with you to select the right, easy to install solutions for maximum efficiency, continuous operation and enhanced safety and protection.

DC advantages



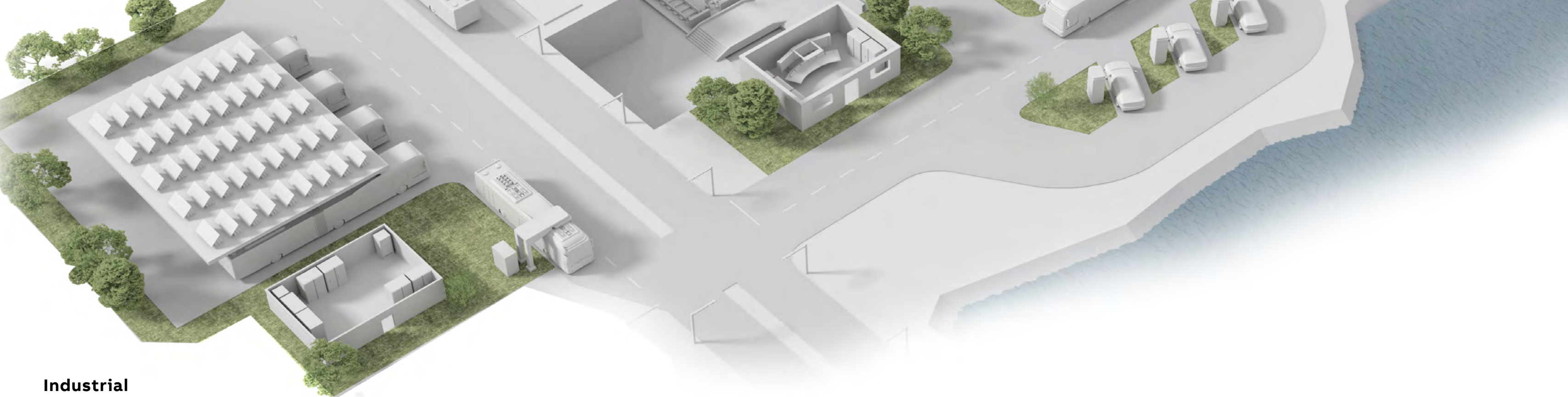
maximize energy efficiency
15-20% of total energy losses saved by supplying loads directly in DC or improving converter efficiency by eliminating the rectifier module.



Cost savings
Up to 30% operational and capital cost savings by developing DC microgrid systems.



Higher efficiency
The technological evolution of DC motors grants higher efficiency compared to traditional DC motors (90% versus 80%).



Industrial

OFFERING

Offering: Miniature circuit breakers



S200 M UC range
ABB's Universal Current MCB for DC and AC applications

The S200 M UC range of miniature circuit-breakers features permanent magnets on the internal arcing chutes able to extinguish an electric arc of up to 500 V DC with Icu = 10 kA, thus ensuring flexible control of both direct and alternating currents. Ideal for industry application because of the high breaking capacity of 10 kA.

System Voltage	Current ratings
up to 500 VDC	up to 63 A



High-performance string protection MCB
The S800PV-SP provides string protection up to 125A and 1500VDC with Icu=5kA in accordance with IEC 60947-2 and Annex P.

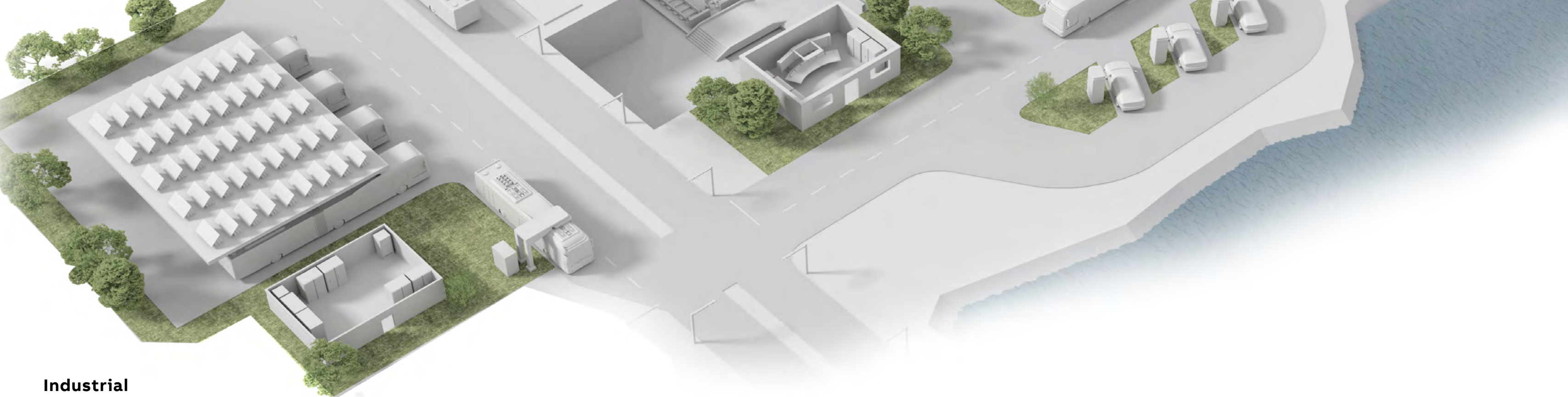
The High-Performance MCB S800PV-SP specially developed for use in photovoltaic systems offers reliable protection for PV modules and lines against reverse currents from defective strings and AC regenerative feedback due to defective inverters. of G2C series.

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



F200 B Type
Built to make the difference
The F200 Type B are universal current sensitive residual current circuit breakers RCCBs designed for industrial applications where there is an increasing use of devices like frequency converters, medical equipment's and UPS systems. The RCCB Type B protect faults occurred due to smooth DC residual currents or currents with low residual ripple which are common in the above applications.

System Voltage	Current ratings
up to 400 VAC.	up to 125 A



Industrial

OFFERING

Offering: Miniature circuit breakers, Surge Protective Device



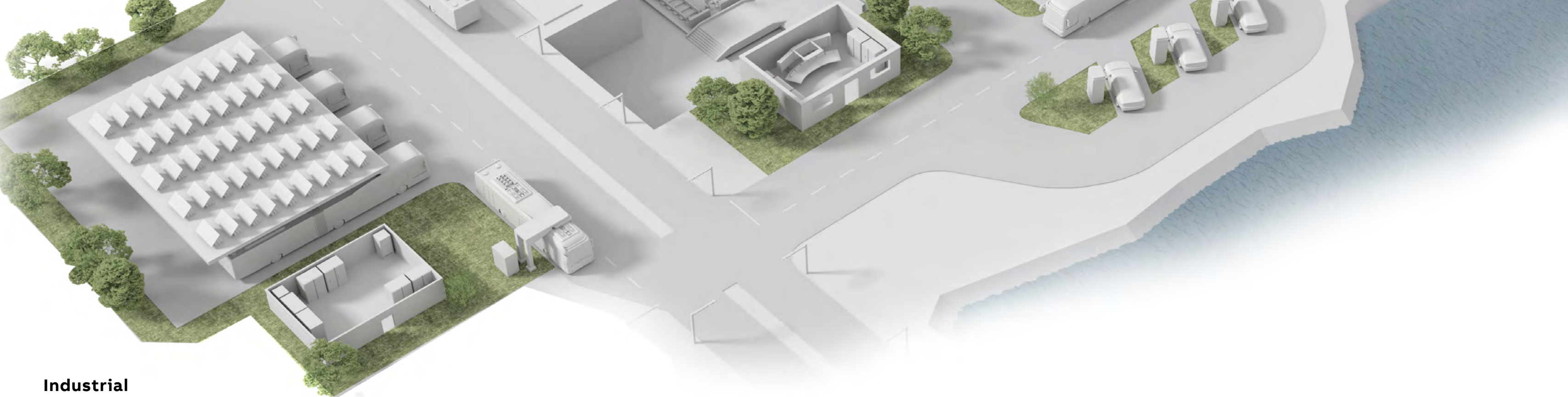
S800PV Ground Fault Detector Interrupter
The S804PV-SP5, S804U-PVS5 and S804U-PVSP5 provide ground fault protection according to IEC60947-2 for 1500 VDC, UL489B for 1000 VDC and UL489B (recognized) for 1500 VDC.

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



Surge Protective Devices OVR PV QS
Combined Type 1 and Type 2 SPD can guarantee an overvoltage reduction to protect end equipment, up to 1500 VDC.

System Voltage
up to 1500 VDC



Industrial

OFFERING

Offering: Breakers



SACE Tmax T4N-PV/E
The SACE Tmax PV range of molded-case circuit-breakers for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	250 A



SACE Tmax T
A complete range of moulded case circuit-breakers.

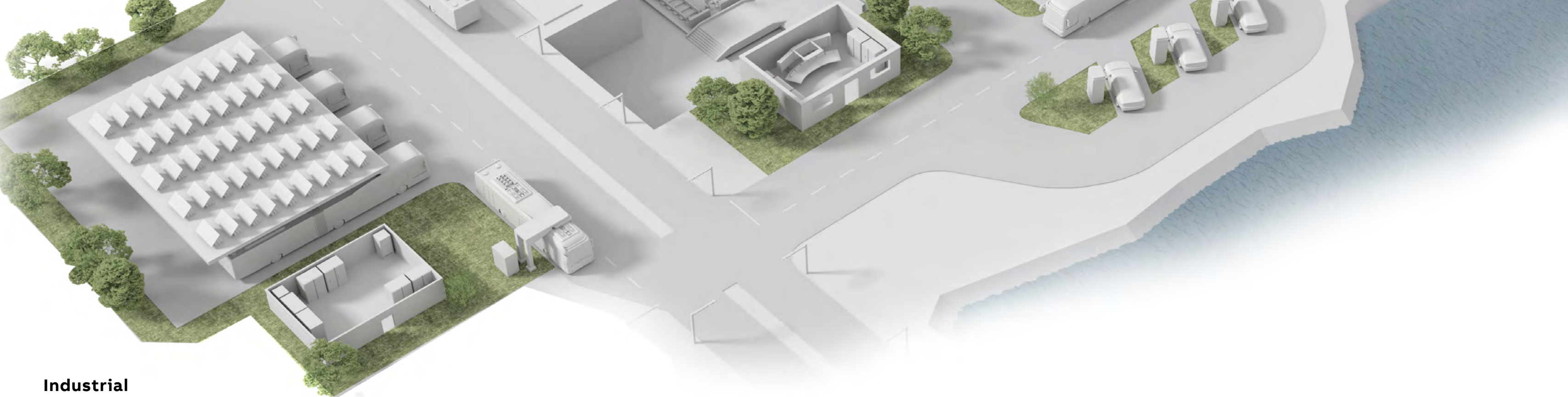
All the circuit-breakers, both three-pole and four-pole, are available in the fixed version; sizes T4 and T5 in the plug-in version and T4, T5, T6, also in the withdrawable one.

System Voltage	Current ratings
up to 1000 VDC	250-800 A



SACE Tmax XT
The Tmax XT trip units are designed to be used in a wide range of applications. Thermal-magnetic trip units are suitable for DC networks, these are a solution for protection against both overloads and short-circuits. The new X version assure Icu up to 100 Ka @ 750 VDC.

System Voltage	Current ratings
500 -750 VDC Range	up to 800A



Industrial

OFFERING

Offering: Breakers



SACE Emax DC
Low voltage Direct Current air
Low voltage Direct Current air
circuit breaker
SACE Emax DC is the only air
circuit breaker on the market
able to protect a DC plant up to
5000A at 1000V DC with
integrated electronic trip units,
including measuring and
communication functions.

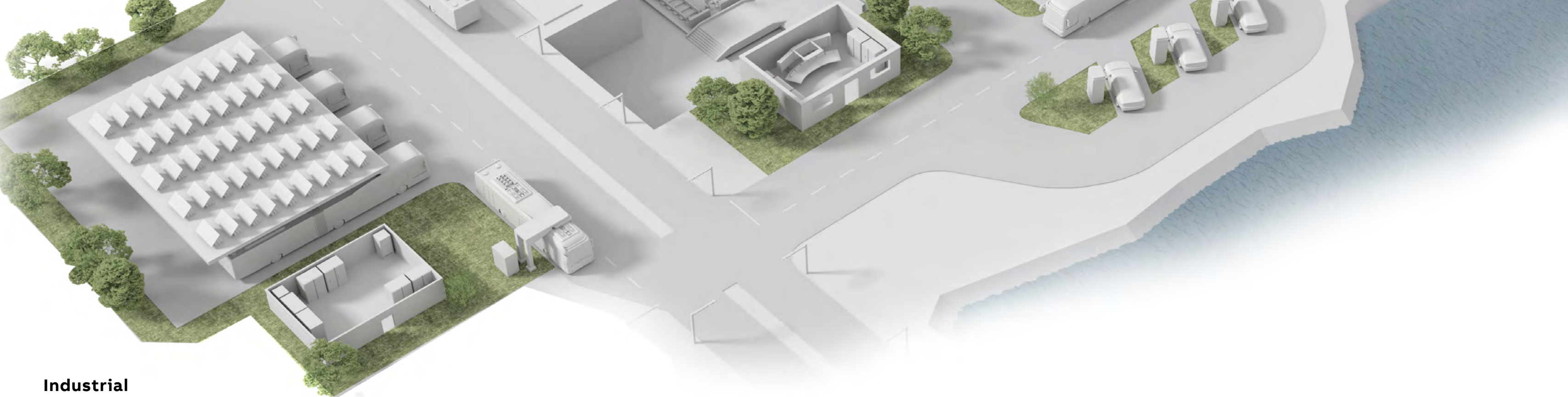
System Voltage	Current ratings
up to 1000 VDC	800-5000 A Range



Concept, product not for sales.
For more information contact us.

**Solid state circuit breaker
Concept**
A technological breakthrough by
ABB – solid-state circuit breaker –
will enhance performance of
renewable energy solutions,
industrial battery storage
solutions and so-called edge
grids.

System Voltage	Current ratings
up to 1250 VDC	2500 A



Offering: Switch-disconnectors



Switch disconnector for DC side isolation of PV systems

The S800PV-SD provides isolation protection up to 125A and 1500VDC with Icw=1.5kA in accordance with IEC 60947-3 and Annex D. With highly compact design for installation on the DIN rail, the S800PV-SD switch disconnector offers safety relevant isolation properties. As master switch for PV systems, the whole DC side can thus be safely isolated – locally or remote.

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



Polarized disconnector for DC side isolation of PV systems

The S800PV-M-H only available as 2-pole device provides isolation protection up to 100A and 1000VDC with Icw=1.5kA in accordance with IEC 60947-3.

This disconnector might be small, but it’s a giant when it comes to performance. With a nominal current range up to 100A, it covers a large range of applications. At the same time, the compact S802PV-M-H is only 54 mm wide. As a result, space requirement is minimal.

System Voltage	Current ratings
up to 1000 VDC	up to 100 A



OTDC Switch-disconnectors 16...1000A

If operation under load is required, OTDC switch-disconnectors have a robust and high switching performance from 16A to 1000A, up to 1500 Vdc. The utilization categories covered are from DC-21B up to DC-22B and DC-PV2. OTDC Switches allow multi-circuit switching with a small footprint.

OTDC Switches have a high Icw up to 63kA, and have been tested with fuses up to 100kA. They are certified according to DNV GL.

System Voltage	Current ratings
up to 1500 VDC	16-1000 A Range

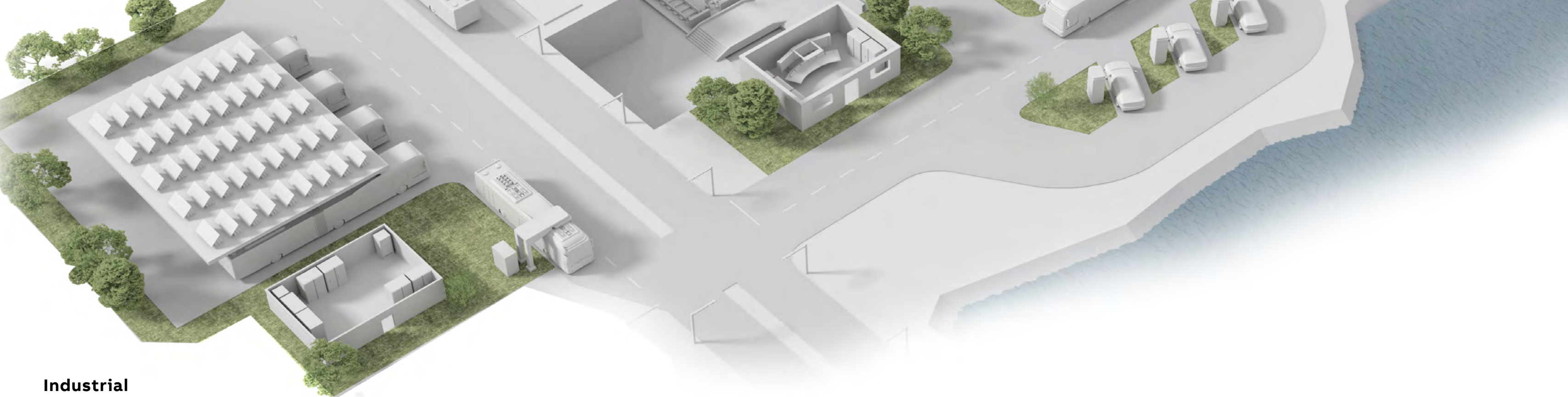


OT Disconnectors 1600...4000 A, DC-20

OT disconnectors are suitable for applications in DC-20 category that do not require operation under load and where reliable isolation is needed.

OT Disconnectors have a high Icw up to 100kA and impressive max. let-through peak currents. An electrical interlock enables safe operation for users.

System Voltage	Current ratings
up to 1500 VDC	1600-4000 A range



Industrial

OFFERING

Offering: Switch-disconnectors



Enclosed OTDC switches
OTDCP from 16 to 32 Amperes (IEC60947) offers DC voltage ratings up to 1000Vdc and a control of up to two circuits within the same footprint area. Safety and protection are ensured with IP65 rating and the handle is padlockable.

System Voltage	Current ratings
up to 1000 VDC	up to 32 A



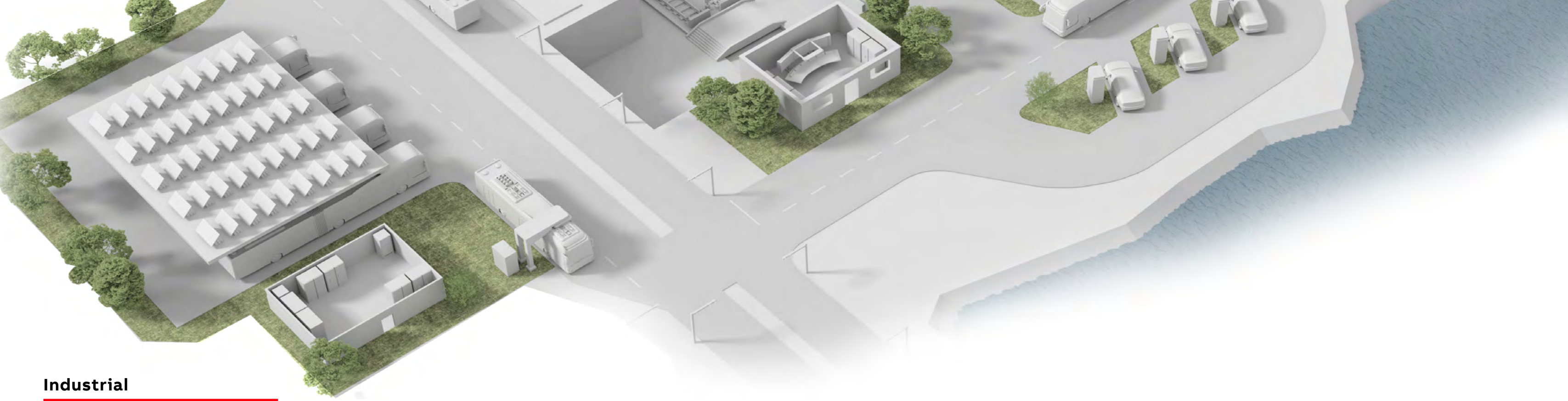
OT manual operated Switch-disconnectors
ABB switch-disconnectors are designed, built and tested for the best possible performance. They are designed to be virtually maintenance-free across their entire extended lifespan and offer reliable performance in any and all possible circumstances. Durability has been ensured by testing switches against the IEC60947- 3, UL508, UL98 and CSA standards.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Change-over switches
ABB offers a wide variety of manually and remotely operated change-over and bypass switches from 16 to 3200 Amperes range. A marine certified range of products available for demanding applications such as secondary source transfer, load transfer or any critical component maintenance bypass arrangement.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Industrial

Offering: Switch-disconnectors



Tmax XT Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 750 VDC	up to 1250 A



Tmax T ed Emax Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 1000 VDC	up to 6300 A



SACE Tmax T - PV
The SACE Tmax PV range of switch-disconnectors for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

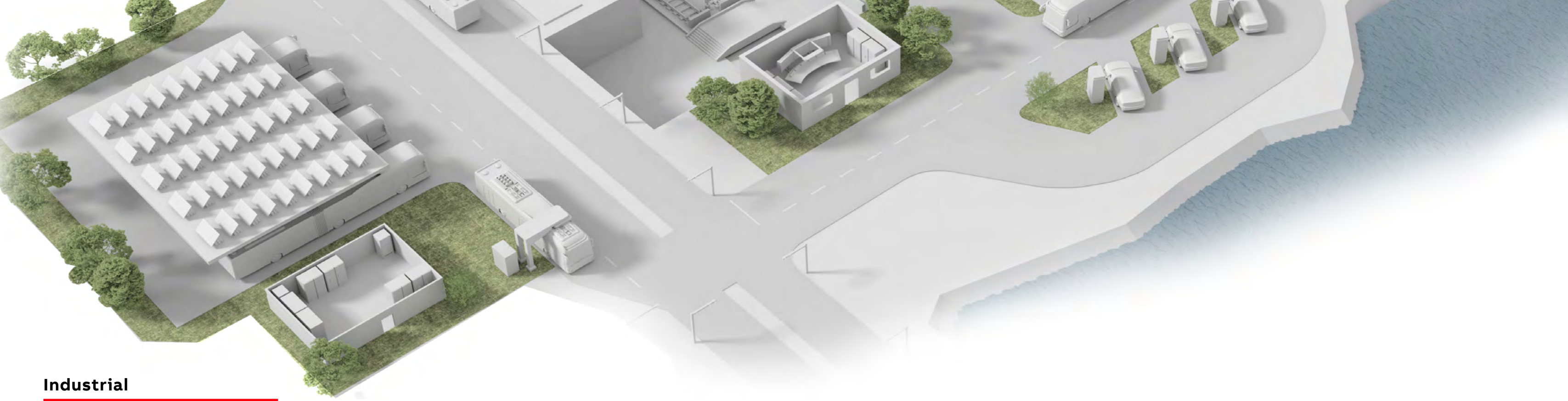
System Voltage	Current ratings
up to 1500 VDC	1600 A



Emax 2 MS - 1500V DC
Emax 2 MS/DC-E is the air switch-disconnectors up to 4000A IEC and 3200 A UL, and up to 100kA Icw (1s) withstand current. It is made in compliance with IEC60947-3 annex D (DC-PV2 category), UL 489B, UL489F, and CCC approval.

System Voltage	Current ratings
up to 1500 VDC	up to 4000 A





Industrial

Offering: Switch-Fuses and Fuse Gear



E90 PV
1000 V DC and 1500 V DC range of fuse holders and fuses The E90 PV series of fuse holders have been specifically designed for photovoltaic applications. Thanks to their rated voltage of 1000 and 1500 V DC.

System Voltage	Current ratings
up to 1500 VDC	up to 32 A



Fuse bases OFAZ and OFAX
The fuse bases can be used in combination with NH fuse-links according to IEC 60269-2 and DIN VDE 0636-2 and solid links. Fuse bases offer a compact and simple solution for protection against short-circuit and over-currents. Fuses as protective elements are characterized by galvanically silver plated contacts providing reliable and high performing contact characteristics. OFAZ and OFAX fuse bases are available as open types or fully protected IP20 versions.

System Voltage	Current ratings
up to 1000 VDC	up to 1250 A



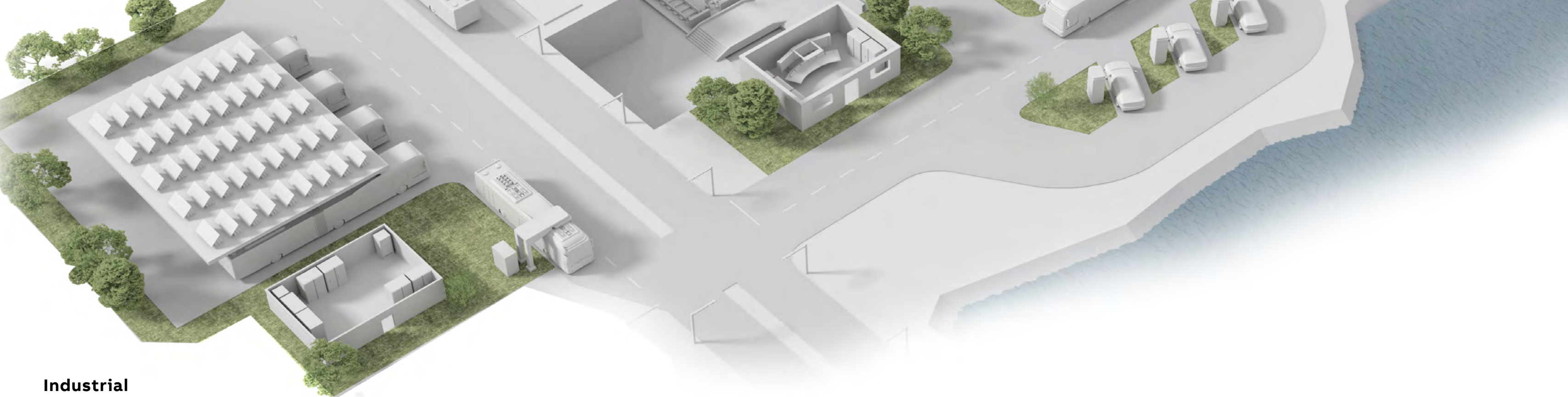
OS manual operated Switch Fuses
World-class performance for demanding marine applications. The OS range includes switch fuses from 20 to 1250 Amperes, available for most common fuses: DIN, BS, NFC, CC, JJ and L types. OS switch fuses have a wide range of different accessories such as interlocking and fuse monitoring devices.

System Voltage	Current ratings
up to 1000 VDC	20-1250 A Range



EasyLine - XLP
Fuse switch-disconnectors
EasyLine range of fuse switch-disconnectors ensures high protection and reliable operation from 160A to 630A. Variants up to 440Vdc are available as 1- or 2-pole design.

System Voltage	Current ratings
up to 440 VDC	160-630 A range



Industrial

OFFERING

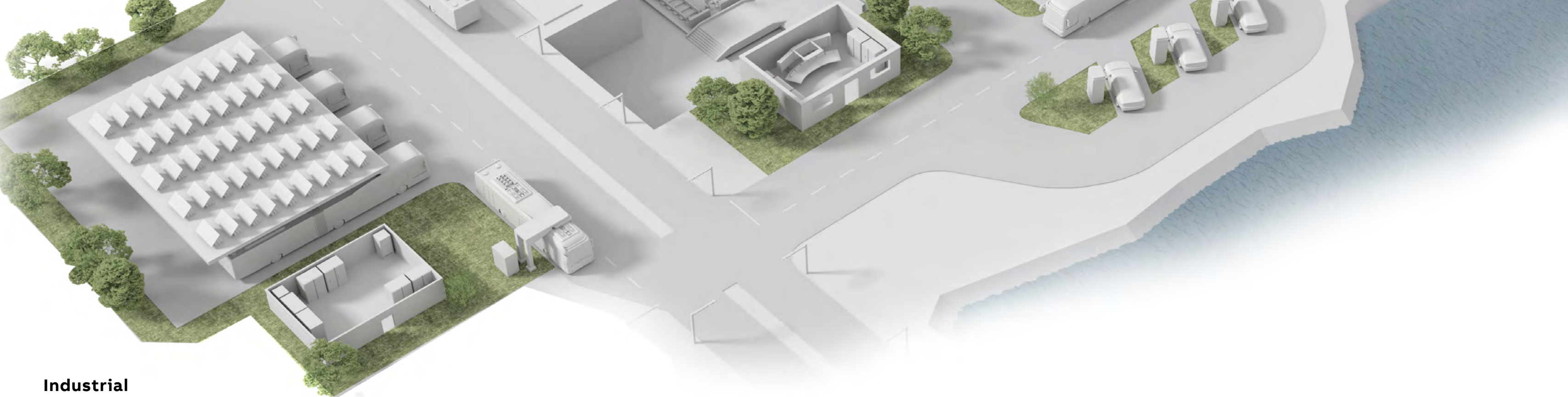
Offering: Switch-Fuses and Fuse Gear



SlimLine XR Gold (XRG)
The SlimLine XRG, switch-disconnector fuse drives exceptional energy efficiency, reducing temperature rise and enabling higher performance across the panel board. Stacking of the devices reduces the floor space up to 40%.



System Voltage	Current ratings
up to 500 VDC	125-630 A range



Offering: Contactors



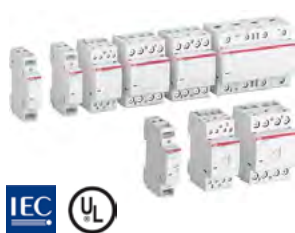
Contactors for DC switching
For a compact and efficient way of DC switching
GF, GAF and GA contactors are specifically designed for switching DC circuits up to 1500 V. Thanks to the efficient breaking of DC circuits, the product range is one of the most compact on the market for applications such as PV Solar, EV charging, UPS and Energy storage systems.

Type	System Voltage	Current ratings
GF	up to 1500 VDC	875 -1325 A Range
GAF	up to 1000 VDC	250-2050 A Range
GA	up to 1000 VDC	35-120 A Range



Motor protection and control
ABBs standard AF contactor range can also be used for switching DC from 850 V DC and below. To keep it running, you need Control ABB’s motor protection and control offering is among the widest on the market our comprehensive range of motor starting solutions, products and services delivers the certainty of consistent quality and performance.

System Voltage	Current ratings
220 -850 VDC Range	16-2650 A Range



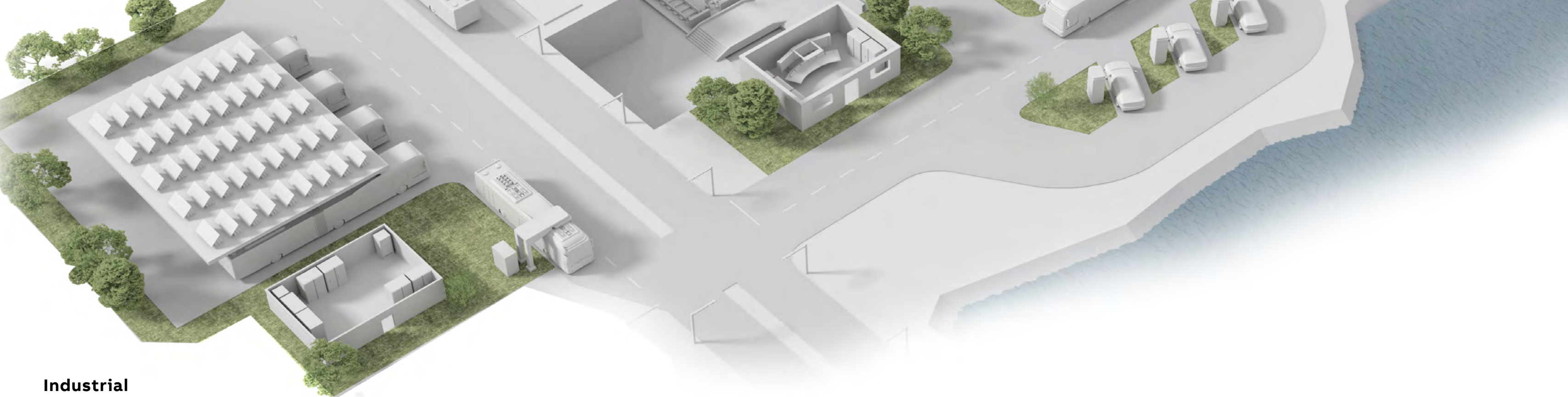
Installation contactors
ABB’s hum-free installation contactor designs offer a wide range of ratings from 16 A to 100 A. Widely used in buildings for switching and controlling lighting, heating, ventilation, motor and pumps, the installation contactors take noise reduction to a new level. With an innovative AC/DC design that eliminates hum, a selection of tool-free accessories as well as manual and automatic versions.

System Voltage	Current ratings
up to 220 VDC	up to 100 A



Contactor relays for auxiliary circuit switching
ABB’s contactor relays offering features products of technological advancement as well as products with specific purposes. NF contactor relays allow use in all parts of the world and in all network conditions. The mini contactor relays range offer various contact combinations and specific connection possibilities. The AS contactor relays are efficient and allow you to optimize your equipment design.applications.

System Voltage	Current ratings
up to 600 VDC	up to 1 A



Offering: Electronic relays and controls



CP-D power supplies
Power supplies to fit any panel
ABB's CP-D range of power supply units with its modular DIN rail component (MRDC) design fits all domestic installation and distribution panels.

System Voltage	Current ratings
Input: 120-375 V DC	0.42 A / 0.83 A / 1.3 A
output: 12 V, 24 V DC	/ 2.1 A / 2.5 A / 4.2 A



CP-E power supplies
Power supplies with enhanced functionality
ABB's CP-E range offers enhanced functionality and a simpler, more rational selection process. All power supply units can be operated at an ambient temperature of up to +70 °C.

System Voltage	Current ratings
Input: 90-375 V DC	0.625 A / 0.75 A / 1.25 A
output: 5V, 12 V, 24 V, 48 V DC	/ 2.5 A / 3 A / 5 A / 10 A / 20 A



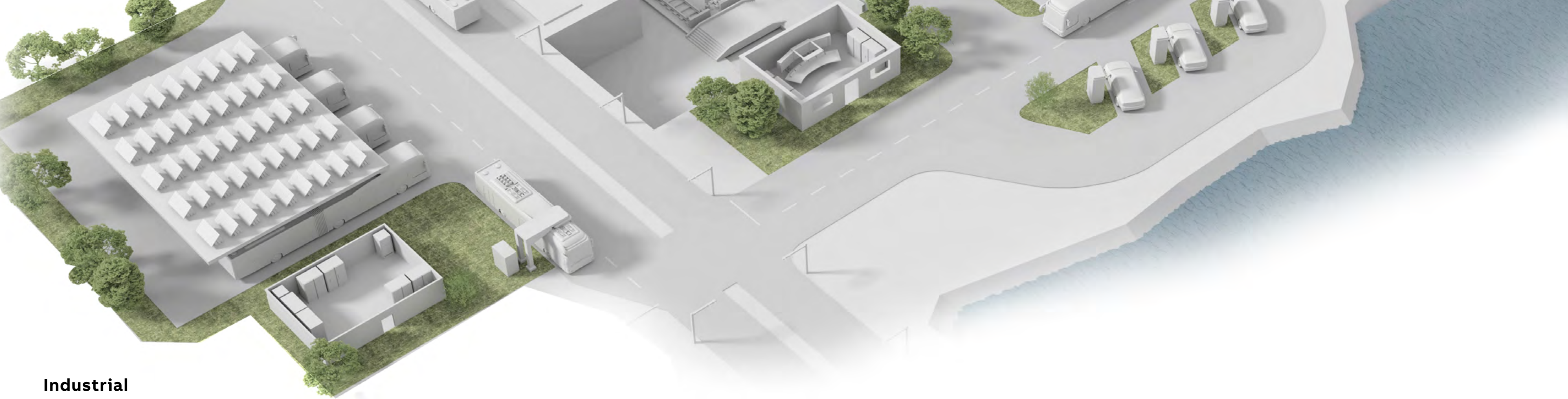
CP-C.1 power supplies
ABB's high-performance CP-C.1 power supplies for demanding industrial applications deliver high efficiency, high reliability and innovative functionality. This advanced range of power supplies has an integrated power reserve of up to 150% continuously and operate at an efficiency of up to 94 %.

System Voltage	Current ratings
Input: 90-300 V DC	5 A / 10 A / 20 A
output: 24 VDC	



CP-T power supplies
Advanced three-phase power supply units
ABB's CP-T range of three-phase power supply units perfectly complement existing power supply offering in terms of design and functionality, giving you more advanced options for your three-phase applications.

System Voltage	Current ratings
Input: 480-820 V DC	5 A / 10 A / 20 / 40 A
output: 24 V, 48 V DC	



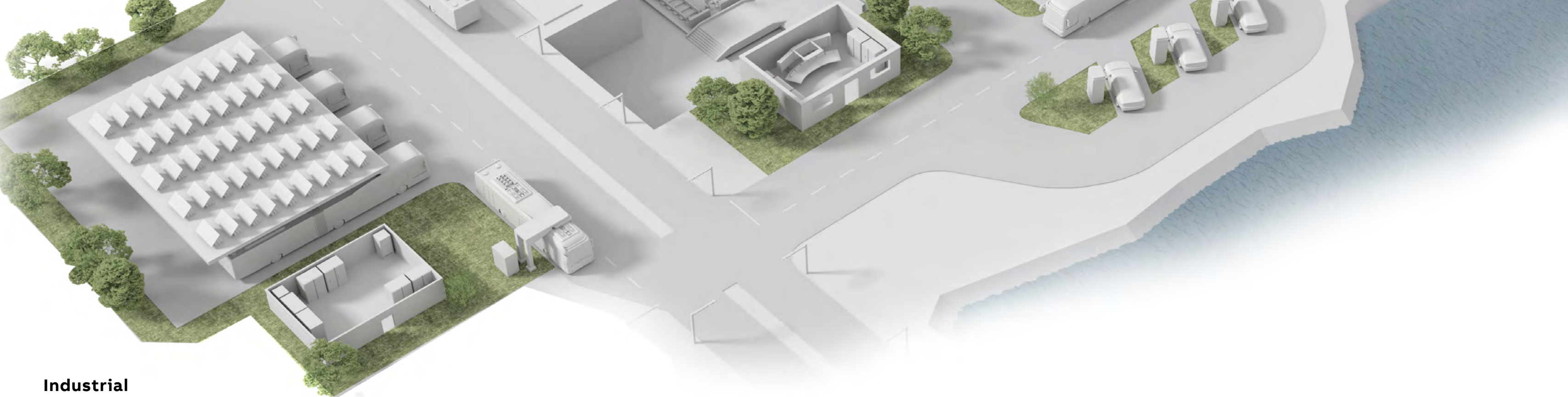
Industrial

Offering: Electronic relays and controls



Protection device EPD 24
Electronic overcurrent protection modules for selective protection of 24V DC load circuits, detecting fault in a load circuit, disabling the power output transistor and hence interrupting the current flow in the defective circuit.
System voltage: 24 V DC
Current ratings: 0,5..12 A





Industrial

OFFERING

Offering: Monitoring systems



Circuit monitoring systems
Give your buildings a new dimension
With the rise of digitalization and the Internet of Things (IoT) collection of data from the entire network for analysis becomes easier, enabling optimization of energy usage and assets. From monitoring energy consumption to control of operations and costs, connectivity-based solutions can improve energy efficiency while reducing costs. ABB's portfolio of scalable energy and asset management solutions, including CMS-700, brings this digital transformation into public, commercial and industrial solutions.

Current ratings
up to 160 A



System pro M compact® InSite
Beyond connected, always one step ahead of maintenance. System pro M compact® InSite has been specifically developed to meet requirements of energy and asset management by monitoring and controlling the energy flow in sub distribution boards.

Current ratings
up to 160 A



Current Shunts
ABB offers a wide range of current Shunts for direct current. If current in a circuit is too high to be applied directly to a measuring instrument, a shunt is used to reduce the current accurately proportional to the current in the circuit, which can be conveniently connected to measuring and recording instruments. Explore the full range and discover the most suitable Current Transformers or Shunts for your needs.

Current ratings
10-1000 A range



Digital voltmeter VLMD
A range of 26x72 and modular digital instruments for measuring DC voltage

System Voltage
up to 500 VDC



Transportation Rail infrastructure

GENERAL

General

Rapid urbanization and the reduction of gas emissions has sparked a shift in the railway and transportation industry.

Rail is being rediscovered as a sustainable and energy-efficient form of transport. We understand the importance and implications of running railway networks. We provide complete solutions that protect your infrastructure, and meet the expectations of users and transport stakeholders for all key applications.

These include infrastructure, passenger stations, control and signaling units, tunnels and rolling stock.

When it comes to rail infrastructure and rolling stock, the main key focus areas is DC voltage.

Our innovative products are designed for heavy-duty industrial applications and are extensively tested to withstand the requirements of a transportation system, helping to ensure maximum reliability for our customers.

DC advantages



Continuos operation
Our innovative products are designed for heavy-duty traction applications and are extensively tested to withstand the requirements of a transportation system, helping to ensure maximum reliability for our customers.



Energy Efficiency
Lower voltage drop due to no inductive effects along the connecting cables. Lower power losses due to lower cable resistance (no skin effect). Higher DC/DC converters efficiency compared to AC/DC converters having the same rated power.



Transportation Rail infrastructure

OFFERING

Offering: Miniature circuit breaker and Surge Protective Device



S200 M UC range
ABB's Universal Current MCB for DC and AC applications

The S200 M UC range of miniature circuit-breakers features permanent magnets on the internal arcing chutes able to extinguish an electric arc of up to 500 V DC with Icu = 10 kA, thus ensuring flexible control of both direct and alternating currents. Ideal for industry application because of the high breaking capacity of 10 kA.

System Voltage	Current ratings
up to 500 VDC	up to 63 A



F200 B Type
Built to make the difference

The F200 Type B are universal current sensitive residual current circuit breakers RCCBs designed for industrial applications where there is an increasing use of devices like frequency converters, medical equipment's and UPS systems. The RCCB Type B protect faults occurred due to smooth DC residual currents or currents with low residual ripple which are common in the above applications.

System Voltage	Current ratings
up to 400 VAC.	up to 125 A



High-performance string protection MCB

The S800PV-SP provides string protection up to 125A and 1500VDC with Icu=5kA in accordance with IEC 60947-2 and Annex P.

The High-Performance MCB S800PV-SP specially developed for use in photovoltaic systems offers reliable protection for PV modules and lines against reverse currents from defective strings and AC regenerative feedback due to defective inverters. of G2C series.

System Voltage	Current ratings
up to 1500 VDC	up to 125 A



Surge Protective Devices OVR PV QS

Combined Type 1 and Type 2 SPD can guarantee an overvoltage reduction to protect end equipment, up to 1500 VDC.

System Voltage
up to 1500 VDC



Transportation Rail infrastructure

OFFERING

Offering: Breakers



SACE Tmax T4N-PV/E
The SACE Tmax PV range of molded-case circuit-breakers for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	250 A



SACE Tmax T
A complete range of moulded case circuit-breakers.

All the circuit-breakers, both three-pole and four-pole, are available in the fixed version; sizes T4 and T5 in the plug-in version and T4, T5, T6, also in the withdrawable one.

System Voltage	Current ratings
up to 1000 VDC	250-800 A



SACE Tmax XT
The Tmax XT trip units are designed to be used in a wide range of applications. Thermal-magnetic trip units are suitable for DC networks, these are a solution for protection against both overloads and short-circuits. The new X version assure Icu up to 100 Ka @ 750 VDC.

System Voltage	Current ratings
500 -750 VDC Range	up to 800A



Transportation Rail infrastructure

OFFERING

Offering: Breakers



SACE Emax DC
Low voltage Direct Current air circuit breaker
SACE Emax DC is the only air circuit breaker on the market able to protect a DC plant up to 5000A at 1000V DC with integrated electronic trip units, including measuring and communication functions.

System Voltage	Current ratings
up to 1000 VDC	800-5000 A Range



Solid state circuit breaker Concept
A technological breakthrough by ABB – solid-state circuit breaker – will enhance performance of renewable energy solutions, industrial battery storage solutions and so-called edge grids.

System Voltage	Current ratings
up to 1250 VDC	2500 A



DC rolling stock circuit breaker DCBreak
Medium voltage high-speed bi-directional DC circuit breaker for rolling stock application power supply.
The DCBreak circuit breaker family for rolling stock combines a small footprint, reduced weight, high flexibility and reliable operation with minimal maintenance. It is designed to high safety standards as well as relevant environmental directives and industry standard.

System Voltage	Current ratings
750 VDC - 1500 VDC	up to 1500 A



Transportation Rail infrastructure

OFFERING

Offering: Switch-disconnectors



OTDC Switch-disconnectors
16...1000A

If operation under load is required, OTDC switch-disconnectors have a robust and high switching performance from 16A to 1000A, up to 1500 Vdc. The utilization categories covered are from DC-21B up to DC-22B and DC-PV2. OTDC Switches allow multi-circuit switching with a small footprint.

OTDC Switches have a high Icw up to 63kA, and have been tested with fuses up to 100kA. They are certified according to DNV GL.

System Voltage	Current ratings
up to 1500 VDC	16-1000 A Range



OT Disconnectors 1600...4000 A, DC-20
OT disconnectors are suitable for applications in DC-20 category that do not require operation under load and where reliable isolation is needed.

OT Disconnectors have a high Icw up to 100kA and impressive max. let-through peak currents. An electrical interlock enables safe operation for users.

System Voltage	Current ratings
up to 1500 VDC	1600-4000 A range



OT manually operated Switch-disconnectors
ABB switch-disconnectors are designed, built and tested for the best possible performance. They are designed to be virtually maintenance-free across their entire extended lifespan and offer reliable performance in any and all possible circumstances. Durability has been ensured by testing switches against the IEC60947- 3, UL508, UL98 and CSA standards.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Change-over switches
ABB offers a wide variety of manually and remotely operated change-over and bypass switches from 16 to 3200 Amperes range. A marine certified range of products available for demanding applications such as secondary source transfer, load transfer or any critical component maintenance bypass arrangement.

System Voltage	Current ratings
up to 1000 VDC	up to 600 A



Transportation Rail infrastructure

OFFERING

Offering: Switch-disconnectors



Tmax XT Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 750 VDC	up to 1250 A



Tmax T ed Emax Breaker based switch-disconnectors
A based switch-disconnectors allows remote trip, remote operations and a full offers of accessories.

System Voltage	Current ratings
up to 1000 VDC	up to 6300 A



SACE Tmax T - PV
The SACE Tmax PV range of switch-disconnectors for photovoltaic applications offers an increasingly comprehensive, leading-edge solution that anticipates the market trends.

System Voltage	Current ratings
up to 1500 VDC	1600 A



Emax 2 MS - 1500V DC
Emax 2 MS/DC-E is the air switch-disconnectors up to 4000A IEC and 3200 A UL, and up to 100kA Icw (1s) withstand current. It is made in compliance with IEC60947-3 annex D (DC-PV2 category), UL 489B, UL489F, and CCC approval.

System Voltage	Current ratings
up to 1500 VDC	up to 4000 A





Transportation Rail infrastructure

OFFERING

Offering: Switch-Fuses and Fuse Gear



OS manual operated Switch Fuses
World-class performance for demanding marine applications. The OS range includes switch fuses from 20 to 1250 Amperes, available for most common fuses: DIN, BS, NFC, CC, JJ and L types. OS switch fuses have a wide range of different accessories such as interlocking and fuse monitoring devices.

System Voltage	Current ratings
up to 1000 VDC	20-1250 A Range



Fuse bases OFAZ and OFAX
The fuse bases can be used in combination with NH fuse-links according to IEC 60269-2 and DIN VDE 0636-2 and solid links. Fuse bases offer a compact and simple solution for protection against short-circuit and over-currents. Fuses as protective elements are characterized by galvanically silver plated contacts providing reliable and high performing contact characteristics. OFAZ and OFAX fuse bases are available as open types or fully protected IP20 versions.

System Voltage	Current ratings
up to 1000 VDC	up to 1250 A



EasyLine - XLP Fuse switch-disconnectors
EasyLine range of fuse switch-disconnectors ensures high protection and reliable operation in critical power applications, distribution boards, switchboards, capacitor banks.

System Voltage	Current ratings
up to 440 VDC	160-630 A range



E90 PV 1000 V DC and 1500 V DC range of fuse holders and fuses
The E90 PV series of fuse holders have been specifically designed for photovoltaic applications. Thanks to their rated voltage of 1000 and 1500 V DC.

System Voltage	Current ratings
up to 1500 VDC	up to 32 A



Transportation Rail infrastructure

OFFERING

Offering: Contactors



Contactors for DC switching
For a compact and efficient way of DC switching
GF, GAF and GA contactors are specifically designed for switching DC circuits up to 1500 V. Thanks to the efficient breaking of DC circuits, the product range is one of the most compact on the market for applications such as PV Solar, EV charging, UPS and Energy storage systems.

Type	System Voltage	Current ratings
GF	up to 1500 VDC	875 -1325 A Range
GAF	up to 1000 VDC	250-2050 A Range
GA	up to 1000 VDC	35-120 A Range



Motor protection and control
ABBs standard AF contactor range can also be used for switching DC from 850 V DC and below. To keep it running, you need Control ABB’s motor protection and control offering is among the widest on the market our comprehensive range of motor starting solutions, products and services delivers the certainty of consistent quality and performance.

System Voltage	Current ratings
220 -850 VDC Range	16-2650 A Range



Installation contactors
ABB’s hum-free installation contactor designs offer a wide range of ratings from 16 A to 100 A. Widely used in buildings for switching and controlling lighting, heating, ventilation, motor and pumps, the installation contactors take noise reduction to a new level. With an innovative AC/DC design that eliminates hum, a selection of tool-free accessories as well as manual and automatic versions.

System Voltage	Current ratings
up to 220 VDC	up to 100 A



Contactor relays for auxiliary circuit switching
ABB’s contactor relays offering features products of technological advancement as well as products with specific purposes. NF contactor relays allow use in all parts of the world and in all network conditions. The mini contactor relays range offer various contact combinations and specific connection possibilities. The AS contactor relays are efficient and allow you to optimize your equipment design.applications.

System Voltage	Current ratings
up to 600 VDC	up to 1 A



Transportation Rail infrastructure

OFFERING

Offering: Electronic relays and controls



CP-D power supplies
Power supplies to fit any panel
ABB’s CP-D range of power supply units with its modular DIN rail component (MRDC) design fits all domestic installation and distribution panels.

System Voltage	Current ratings
Input: 120-375 V DC	0.42 A / 0.83 A / 1.3 A
output: 12 V, 24 V DC	/ 2.1 A / 2.5 A / 4.2 A



CP-E power supplies
Power supplies with enhanced functionality
ABB’s CP-E range offers enhanced functionality and a simpler, more rational selection process. All power supply units can be operated at an ambient temperature of up to +70 °C.

System Voltage	Current ratings
Input: 90-375 V DC	0.625 A / 0.75 A / 1.25 A
output: 5V, 12 V, 24 V, 48 V DC	/ 2.5 A / 3 A / 5 A / 10 A / 20 A



CP-T power supplies
Advanced three-phase power supply units
ABB’s CP-T range of three-phase power supply units perfectly complement existing power supply offering in terms of design and functionality, giving you more advanced options for your three-phase applications.

System Voltage	Current ratings
Input: 480-820 V DC	5 A / 10 A / 20 /40 A
output: 24 V, 48 V DC	



CP-C.1 power supplies
ABB’s high-performance CP-C.1 power supplies for demanding industrial applications deliver high efficiency, high reliability and innovative functionality. This advanced range of power supplies has an integrated power reserve of up to 150% continuously and operate at an efficiency of up to 94 %.

System Voltage	Current ratings
Input: 90-300 V DC	5 A / 10 A / 20 A
output: 24 VDC	



Transportation Rail infrastructure

OFFERING

Offering: Electronic relays & controls



CP-B power supplies
Ultracapacitor-based buffering units
ABB's ultra-capacitor based CP-B buffer modules serve to ensure a shortterm uninterrupted power supply system with a voltage of 24 V DC by buffering the load in case of power loss.
The buffer modules feature a new technology of storing energy by using ultra-capacitors which entirely obviate the need for maintenance and exempt deep discharge in comparison to batteries.

System Voltage	Current ratings
Input: 24 V DC output: 24 VDC	3 A / 10 A / 20 A



Insulation monitoring relays for IT systems
ABB's CM-IWx insulation monitoring relays for IT systems provide continuous, reliable monitoring. The devices recognize insulation faults as they develop, tripping as soon as the value falls below minimum set thresholds. This makes systems more reliable and prevents interruptions caused by severe secondary insulation faults. Make your monitoring more secure and your maintenance smarter with CM-IWx insulation monitoring relays.

System Voltage	System leakage capacitance
up to 1500 VDC	monitoring up to 3000 µF
Railway certification up to 1000 VDC monitoring up to 20 µF	



Voltage and current monitoring relays
ABB's CM range offers a wide selection of powerful, compact devices for the monitoring of currents and voltages in single-phase AC/DC systems. All come in a housing that is just 22.5 mm wide. This product range includes current and voltage monitoring relays for over- and undercurrent protection, over- and undervoltage protection and phase loss monitoring – from 3 mA to 15 A and from 3 V to 600 V. ABB's CM range gives your electric installation the highest safety and reliability.

System Voltage	Current ratings
up to 600 VDC	Up to 15 A direct



Pilot devices
Reliable, easy to select and to install
ABB pilot devices are engineered for totally reliability. Our products are tested to extremes and proven in the toughest environments. Thier innovative design simplify the entire process, from selection to installation. Enclosures, signal towers and signal becons complete the portfolio.



Transportation Rail infrastructure

OFFERING

Offering: Monitoring systems



Circuit monitoring systems
Give your buildings a new dimension
With the rise of digitalization and the Internet of Things (IoT) collection of data from the entire network for analysis becomes easier, enabling optimization of energy usage and assets. From monitoring energy consumption to control of operations and costs, connectivity-based solutions can improve energy efficiency while reducing costs. ABB's portfolio of scalable energy and asset management solutions, including CMS-700, brings this digital transformation into public, commercial and industrial solutions.

Current ratings
up to 160 A



System pro M compact® InSite
Beyond connected, always one step ahead of maintenance. System pro M compact® InSite has been specifically developed to meet requirements of energy and asset management by monitoring and controlling the energy flow in sub distribution boards.

Current ratings
up to 160 A



Current Shunts
ABB offers a wide range of current Shunts for direct current. If current in a circuit is too high to be applied directly to a measuring instrument, a shunt is used to reduce the current accurately proportional to the current in the circuit, which can be conveniently connected to measuring and recording instruments. Explore the full range and discover the most suitable Current Transformers or Shunts for your needs.

Current ratings
10-1000 A range



Digital voltmeter VLMD
A range of 26x72 and modular digital instruments for measuring DC voltage

System Voltage
up to 500 VDC



Transportation Rail infrastructure

OFFERING

Offering: DC traction power supply applications



Gerapid – DC high-speed circuit breaker
Gerapid is a single pole, DC high-speed, circuit breaker designed for use in DC traction power substations. The combination of high interruption capacity and current limiting characteristics makes Gerapid a reliable protection solution for DC traction power distribution systems.

System Voltage	Current ratings
750 - 1500 - 3000 VDC	up to 8000 A



Enviline™ DCGear
DC switchgear for traction power supply applications
ABB’s comprehensive products and solutions portfolio covers all functional requirements of modern traction power supply systems.

Enviline DCGear serves as control and protection equipment in DC traction networks. It is a metal-enclosed and compartmentalized switchgear for indoor installation. The cubicles contain proven technology components.

Feeder current	Busbar current
up to 6000 A	up to 10000 A



Enviline™ TDR - Traction Diode Rectifier
The most reliable and cost effective rectification solutions for DC rail transportation.

To power trains, metros and trams, it is necessary to use an electronic power converter (traction rectifier) to convert alternating current into direct current. The Enviline TDR (Traction Diode Rectifier) is the most reliable and cost effective rectification solution for DC rail transportation.

System Voltage	Current ratings
600 -750 - 1500 - 3000 VDC	up to 5000 A



Enviline™ WDR - Withdrawable Diode Rectifier
The most reliable and cost effective rectification solutions for DC rail transportation.

To power trains, metros and trams, it is necessary to use an electronic power converter (traction rectifier) to convert alternating current into direct current. The Enviline TDR (Traction Diode Rectifier) is the most reliable and cost effective rectification solution for DC rail transportation.

System Voltage	Current ratings
600 -750 - 1500 - 3000 VDC	up to 5000 A



Transportation Rail infrastructure

OFFERING

Offering: DC traction power supply applications



DC eHouse
Direct Current Electrical Substation
DC eHouse is a prefabricated walk-in modular outdoor enclosure to house medium voltage (MV) switchgear, transformer-rectifier groups, DC switchgear and low voltage equipment as well as auxiliary equipment.

It is ready to operate in the field with minimum installation, commissioning and start up time - as an alternative to traditional civil works constructions.



Enviline™ TCR - Traction Controlled Rectifier
Maximizing the distance, balance and stability of the DC line

To power trains, metros and trams, it is necessary to use an electronic power converter (traction rectifier) to convert alternating current into direct current. The Enviline TCR (Traction Controlled Rectifier) is the right solution for maximizing the distance, balance and stability of the DC line. Additionally, the TCR can reduce losses in rolling stock and prevent interruptions caused by undervoltage.

System Voltage	Current ratings
600 -750 - 1500 - 3000 VDC	up to 5000 A



Enviline™ ESS – Energy Storage System
Reduce energy and peak power costs
Enviline ESS is a wayside energy management system that stores and recycles the surplus braking energy. It provides DC voltage stabilization, reduces energy consumption and peak demand.
It can come with either super capacitors for short term storage and recovery of the braking energy or with batteries for additional benefits and revenue generating services.

System Voltage	System power
750 - 1500 - 3000 VDC	5200 kW



Enviline™ ERS Energy Recuperation Systems
IGBT based inverter feeding back surplus braking energy into the AC grid. The product provides significant energy savings.

System Voltage	System power
750 VDC - 1500 VDC	up to 2000 kW



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