Compact Home

Protection and comfort systems
for your home

Compact Home
ABB system for your home

Introduction

Safety at home with ABB

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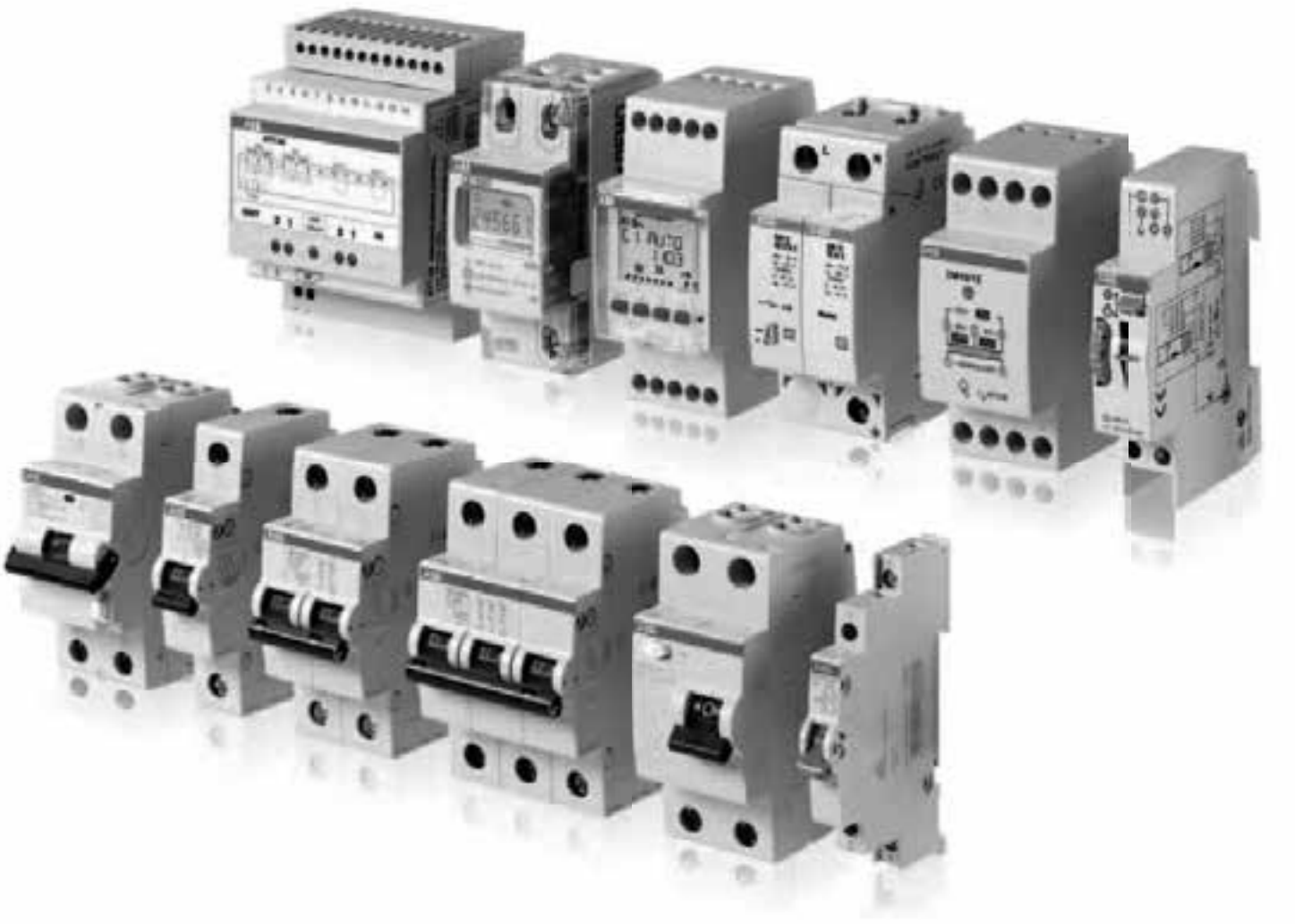
Thanks to its expertise, ABB offers the best solutions and most effective products for your home. A comprehensive fully integrated range of highly reliable, easy-to-install products.

By definition, the home is where you find maximum comfort and protection.
Comfort and protection are closely linked. They are linked to factors such as personal safety, energy savings, environmental sustainability, economic advantage.
Nowadays, new buildings are based on higher building standards and regulations: state-of-the-art materials and products are designed, installed and operated to ensure once unimaginable levels of well-being and safety. Within this rapid evolution, plants - whether electric, thermo-hydraulic, data transmission or any other kind - are the nerves and intelligence of all buildings. They allow us to manage



and optimise our use of energy, climate, sound, alarms, communications and to synchronise any device - electric, electronic, mechanical, hydraulic - based on time of day, use conditions and user expectations.
Through its Compact Home range, ABB makes a full product range available to residential building plant designers and installers. Reliable, easy to use, based on advanced technology these products were born of the research and know how of one of the world's greatest industrial leaders.
Today ABB offers all the products, systems and services needed to guarantee maximum domestic comfort and protection, in any environment or context.
The Compact Home range includes devices and equipment used to reliably manage utilities: these solutions enable you to optimise, integrate and make safety, protection and comfort systems inside and outside your home more efficient, from kitchen to bathroom, lounge to bedroom, garage to garden. Range integration and modularity are two of the basic concepts of ABB's Compact Home . All Compact Home products are versatile and can easily be completed and enriched by other solutions chosen from the vast ABB solution portfolio.
Devices installed in the control panel or switchboard are flanked by Compact Home range control and automation solutions based on the most modern aesthetic and design concepts, but also provided with analogical and digital functions and bus or wireless communications.

A technology that isn’t to see, but is to live

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The endless personalization and integration possibilities of ABB residential solutions allow you to tailor systems to your exact requirements, combining protection, safety, comfort and savings.

Protection

Protecting means safeguarding users, environments and equipment against risks and damage linked to bad use conditions or breakdown.
Surge, overloads, short circuits or earth leakage currents are danger situations which, with no adequate control, can damage the plant and lead to bad accidents like fulmination, fire, flooding or explosion.
Miniature circuit breakers (MCBs), residual current devices (RCDs) and the other protection products in Compact Home catalogue allow you to make installations and equipment safer, offering users the certainty that their plants always satisfy parameters established by the most binding international standards.

Safety

Making one’s personal, domestic environment safe and inviolable has always been one of our most important needs. ABB offers a number of safety solutions guaranteeing control over the surrounding environment to avoid intrusion and dangerous situations.
Its ample catalogue includes integrated anti-intrusion, video control, video entry-phones and building automation systems. Reliable, flexible and affordable, these products come in both the bus and wireless versions and allow you to control and interact with your environment, locally or from a distance, by mobile phone or through internet.
These systems are flanked by effective controls and modular alarms on DIN Rails, installable in any ABB switchboard or small control panel.

Comfort

A person normally spends most of his/her time at home and it is there that the user expects greater comfort and well-being. Modern technologies have all the necessary features to make home welcoming, highly functional and advantageous economically.

ABB's Compact Home products make the different plant components functionally adaptable to the user's wellness needs. These products actively and dynamically regulate climate and lighting, but also irrigation and the many other functions needed to obtain those high comfort levels and an intelligent use of energy.

Savings

The increased cost of energy and growing sensitivity over the environment have stimulated the user to pay greater attention to energy and its efficiency.

Even at home, those small daily gestures -like using the cheapest tariff brackets appropriately - can have a fundamental impact on both your home budget and a more rational use of our planet's resources.

The ABB Compact Home catalogue offers several products with innovative functions, with efficiency and energy savings as their main target.

Smart protection for lasting comfort
Applications for an apartment

1. Protection of the stove and other kitchen equipment
There are many situations, in which a short-circuit can occur, e.g. bad insulation of kitchen equipment and connection to water. Without suitable cable protection, not only the connection cable of the kitchen equipment would become charred, but also the cable installed in the wall behind the socket outlet. In worst case also hazard for human beings exists. ABB MCBs protect you and your installation in the best way – easy and safe installation is possible.

2. Separately protection of media and TV circuits
In newer installations, TV and media circuits are protected separately. Due to the electronics used in this kind of loads they could inject harmonics into the system and maybe it interferes with other electrical equipment. MCBs provide the best protection in cases of overload and short-circuit. ABB MCBs protect you and your installation in the best way – easy and safe installation is possible.

3. Main residual current protection.
In order to ensure safety and continuity of service, ABB offers selective type RCCB F200 S solution to perform selectivity with the RCDs protecting terminal circuits.

4. Protection of the bathroom circuit.
Thanks to the availability of 10mA DS201 RCBOs, it's possible to ensure maximum safety also in critical rooms like the bathroom where the earth leakage effects on the human body are more dangerous due to the presence of water.

5. Surge protection
Compact and easy to install, the DIN Rail OVR Type 2 range gives high overvoltage protection to your sensible equipment and to your apartment.

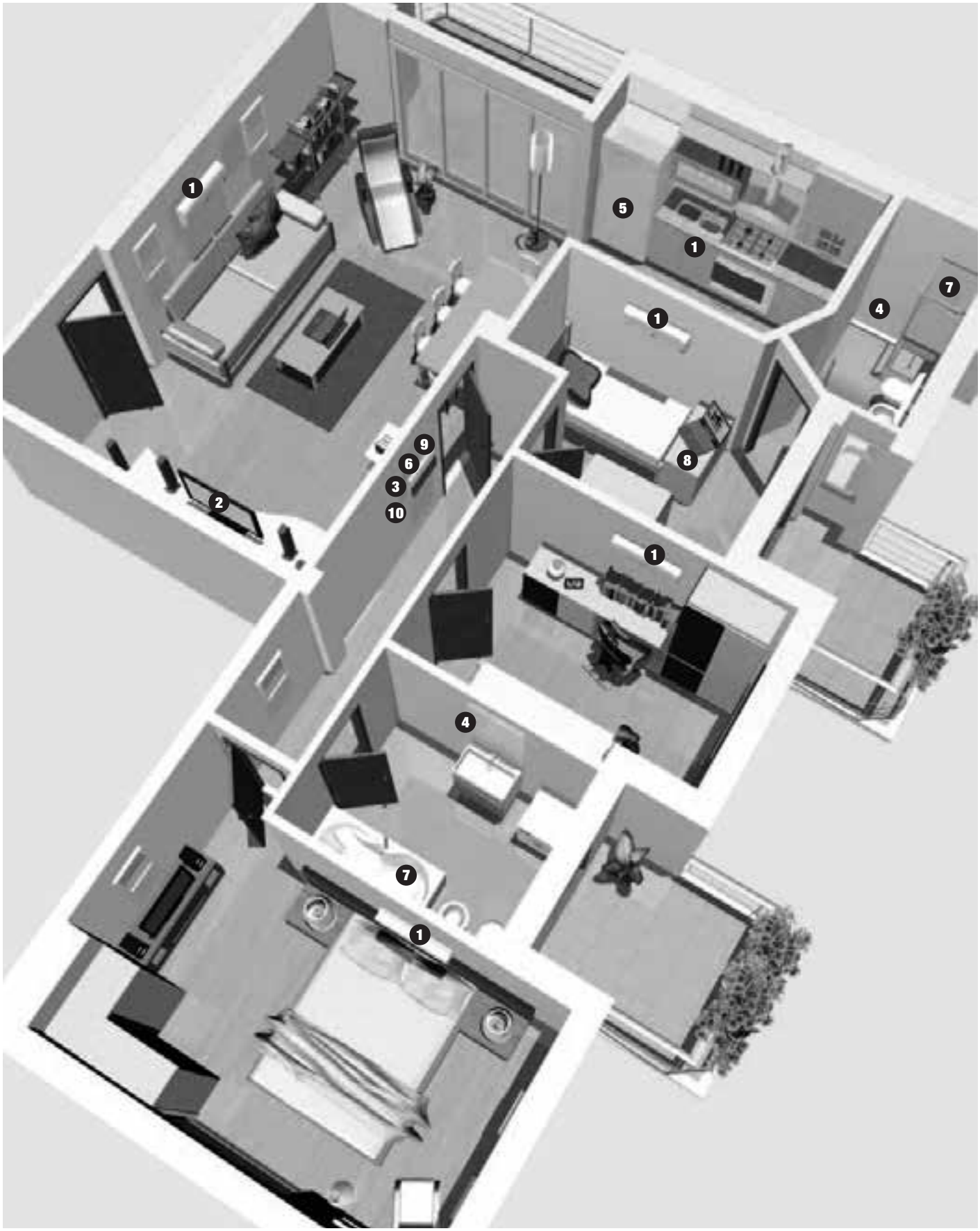
6. Prevention of overloads
Load management device LSS1/2 prevents overtaking a preset power consumption threshold. Two embedded relays 16A disconnect non prioritary loads for some minutes in case of overload, then will switch them on again automatically. Current threshold is programmable between 5A and 90A.

7. Safety for auxiliary circuits
Door entry and bathroom safety pushbuttons should always be supplied in SELV (safety extra low voltage) for safety reasons. TS transformers supply these auxiliary circuits; in case of short circuit TS are made to disconnect automatically the secondary winding and restore their feature automatically as soon as fault is repaired.

8. Bioarchitecture made real
E235 mains disconnection switch ensures no electricity in wiring accessories and electric devices on bedroom circuits when sleeping. Of course as soon as user switches on a load, electricity immediately flows again to supply it.

9. Object metering
Heating and ventilation pumps are obvious candidates for object metering in the home. Also electronic equipments such as washing machines and dishwashers are possible objects to measure.

10. UK500 – Heart of your home
In order to fulfill not only technical, but also aesthetic requirements, the UK500 combines technology and design, while offering the highest possible quality down to the smallest detail. The UK500 is an aesthetic consumer unit which harmoniously fits in its living environment.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Expertise that lets you think big
Residential applications

1. Common lighting circuits protection
In newer installations, lighting circuits are always protected separately from socket outlet circuits. Therefore, it is almost impossible for a danger to occur in lighting circuits in the home sector today, as the permanently connected consumers (lights and lamps) only permit their load-dependent current.
However, cable protection must be provided to prevent overloading of the cable by short-circuits.

2. Common socket outlet protection
MCBs provide the best protection in cases of overload and short-circuit. For sure, you can also disconnect your circuits with MCBs if you need to make maintenance work. There is a limit to the current carrying capacity for all cables! It's not important whether the short-circuit is caused by a defect common appliance or whether a nail pounded into the wall hits the cable. In addition, similar consequences can result when too many appliances are connected to a circuit at the same time (e.g. several fan heaters) to one and the same circuit via a multiple socket-outlet (overload protection).

3. Residual current protection in the common areas.
The FH200 RCCB range up to 63A offers the solution for the protection against insulation fault of any kind of common circuits like the staircase, outside and garage lights, porter's lodge, automated gate and all the common sockets.

4. Protection of the refrigerator
With the new RCBO DS201 APR, specifically designed against nuisance tripping, you can achieve a dedicated protection for the line of the refrigerator preventing goods decay due the lack of supply.

5. Gate management
Thanks to ATT GSM module, all housemasters can open building gate with their mobile by just dialing a number. ATT recognises authorized users avoiding the use of hundreds of expensive and unsafe gate remote controls.

6. Surge protection
The modular autoprotected OVR PLUS range define a new standards in surge protection.
Compact, the integrated backup protection with MCB allows a very easy installation for a better protection of your equipment. The complete OVR range is the solution to bring your house a full and safe surge protection.

7. Staircase lighting
E232 staircase light switches allow to switch on staircase lights only when needed, as user pushes a button. This way users can avoid energy waste, while ensuring full light availability when walking on stairways. E232 can be forced permanently on for staircase cleaning and maintenance purposes.

8. Joint residential sourcing
Unlike applications where a separate billing meter is installed in every apartment or residence for individual billing, joint residential sourcing involves having one central 'billing' meter. The housing association, condominium or equivalent then acts as a single electricity subscriber and redistributes its costs amongst its members according to their actual consumption measured by a meter in each apartment.

9. An attractive enclosure that can be discreetly integrated into your interior
The Unibox consumer units are distinguished by an advanced and elegant design. They integrate themselves easily in whichever decoration solution; for the door, it is possible to choose between the transparent smoked version and the opaque white version. Functionality of the Unibox Series and its safety of installation and safety of use guarantee high quality of construction characteristics.


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Greater comfort, full protection
Applications for the detached house

1. Protection of the entry phone line and other telecommunication systems
In this kind of application normally different voltage level and/or different frequencies are used. To ensure the correct working of these circuits, cable protection must be provided to prevent overloading of the cable. There is a limit to the current carrying capacity for all cables! ABB MCBs protect you and your installation in the best way – easy and safe installation is possible. Make your choice.

2. Protection of security systems, bell circuits or electrical shutters
To ensure the correct working of these auxiliary circuits with maybe different voltage-level cable protection must be provided to prevent overloading of the cable by short-circuits or even an overload e.g. due to obstruction of the shutter. Without suitable cable protection the cable installed in the wall behind the loads becomes charred and maybe needs to be replaced or even the devices get damaged.

3. Sauna and swimming pool residual current protection.
To ensure continuity of service and avoid nuisance tripping due to the natural earth leakage currents that are common in a wet environment, it's a best practice to protect individually the sauna and the swimming pool circuits with a dedicated DS201 RCBO for each line.

4. Mains disconnection
E200 switch disconnector is installed upstream whole electric distribution system ensuring and it is suitable for commanding loads.

5. Automation of basic functions
Time switch D2 with two changeover contacts controls external two zones watering system. Another digital time switch D2 controls some internal ligh circuits, enabling housemaster to simulate people presence even when nobody is in, thanks to random program.

6. External lighting only when needed
With twilight switch TW external lighting switches on automatically when getting dark, thanks to external light detection sensor. Threshold can be programmed on a wide lux range ensuring both optimal lighting and energy efficiency.

7. Safety of outdoor circuits
Care should always taken on outdoor lighting. Especially when close to pools or fountains, a safety extra low voltage transformer TS-C can supply continuously low voltage lighting devices preventing risks of indirect contacts.

8. Burner and venting control
ESB and EN contactors provide efficient load control, for single and three phase loads up to 63 A of rated current. Thanks to their endurance and high switching capacity ESB and EN are ideal in automation of frequently operating loads.

9. Object metering
Heating and ventilation pumps are obvious candidates for object metering in the home, and these can be joined by appliances such as electronic equipment, washing machines, dishwashers as well as sauna. And don't forget outdoors.
Garden terrace heaters space and lighting plus the pond pump are all significant 'energy thieves'. The actual consumption is easy to measure with EQ meters. EQ meters A-series measures in two directions, so it is suitable for a residential PV application.

10. One complete solution for your home
Electrical enclosures for the residential applications coordinate between all technical elements that make up the interior essential in today's homes.
The AT & U compact distribution boards from ABB response this trend about an ever increasing offer of products for home installations. ABB offers with AT & U cabinets one complete solution for all electrical installation requirements in your home.


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An offering designed to meet present and future needs

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The measure of an offering's worth is its completeness and integration. ABB offers solutions that meet and anticipate all the needs of contemporary life: from video entry phones and video surveillance to home automation and charger systems for electric vehicles.

1. Home series
The ABB residential series are the best available on the wiring accessories market. The materials, shapes and colours of plates and controls can be matched, with umpteen combinations, adding value to environments based on your taste, fantasy and needs.
Aesthetics must not sacrifice safety and comfort. The series have a complete energy and alarm functions line, from control devices to plugs, from safety and comfort devices to alarm units, from protectors to detectors, from limit switches to special systems, from domotic bus solutions to installation components.
The series are all integrated with ABB products portfolio, ensuring modular architecture that is always expandable.

2. Entry phone/ Video entry phones
ABB systems offer solutions which enable you to implement entry phone and video entry phone systems for single homes and large residential complexes really easily.
Integrating any internal or external architectural style, these products offer users the most advanced functions and are available in analogical, digital and even wireless versions.

3. Home automation and security systems
ABB home automation systems turn a house plant into an intelligent system, adaptable to the wellness, safety, protection and saving needs of whoever lives in it.
ABB domotic line modularity can be adapted to any type of building, giving us full, integrated management of safety and comfort functions. From anti-intrusion control to managing lighting, to operating loads for greater energy efficiency, ABB domotic systems on bus are easy to install, program and use, with decided modular features guaranteeing the plant can grow based on a customer's evolving needs.

4. Comfort control, security system and radio video surveillance
Available in wired or wireless versions, both analogical and fully digital, ABB solutions allow users to create an inviolable, customised safety barrier between the house and its outside area. Signalling effective danger or discomfort situations, they guarantee users full control over the perimeter.
Reliable and technologically advanced, the ABB burglar alarm and video entry phone lines are modular and integrated with a modern, valuable design meaning they can be used in any architectural context.

5. Components for solar PV plants
ABB has developed a complete range of photovoltaic application products. They satisfy any plant need, from photovoltaic fields to micro domestic installations. Switches, isolators, dischargers, trackers but also measuring and control parts, control panels, distribution units... everything needed to integrate, monitor and protect the energy generated by house panels, in a safe, protected way.

6. Charger systems for electric vehicles
Electric vehicles are the new mobility frontier. E-mobility challenges are not just in the ability to generate energy but also in the possibility to integrate different sources, to accumulate excess production and dislocate safe, reliable charge points accessible for everyone, even in the home environment.
For really personal, sustainable mobility ABB offers a rich catalogue of electric vehicle charging products , from turnkey solutions to single components.

7. External lightning protection with the OPR range
The ABB OPR range makes the construction of a lightning protection system very easy to install. Designed to conduct the lightning current from the external rod to the earthing system, it will keep your home safe and protected against any damage. When you have external protection, you must add a surge protection device (OVR range) to protect your electrical installation and sensitive equipment.

8. Switchboards protecting and isolating photovoltaic plants
ABB offers the best solutions to protect, isolate and cut off photovoltaic sources.
In particular, string combiners - consolidating DC energy produced by the different strings making them available for inverters – allow to protect against overcurrents, lightnings and surges.

9. Selective device downstream from the meter
The S700 series products are selective main circuit breakers for DIN rail enabling you to protect electric installations from surges. They boast total selectivity towards MCBs downstream and considerable selectivity towards protection devices upstream. As they have been designed for the IV overvoltage category and integrate the isolation function they can be used in any distribution or control cabinet.

Efficiency, protection, comfort: measuring a system's value

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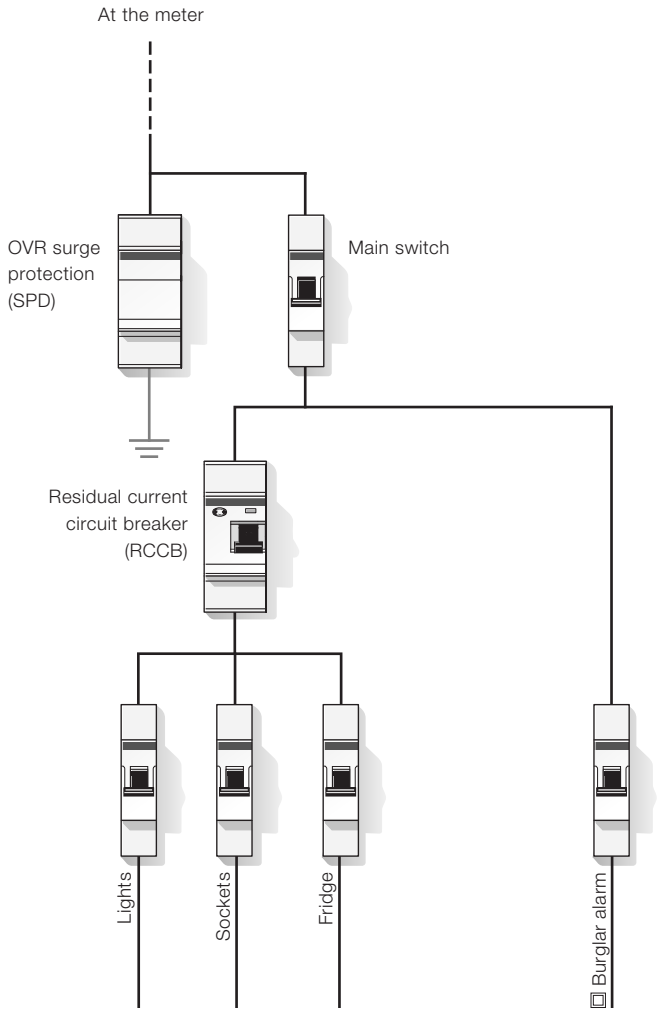
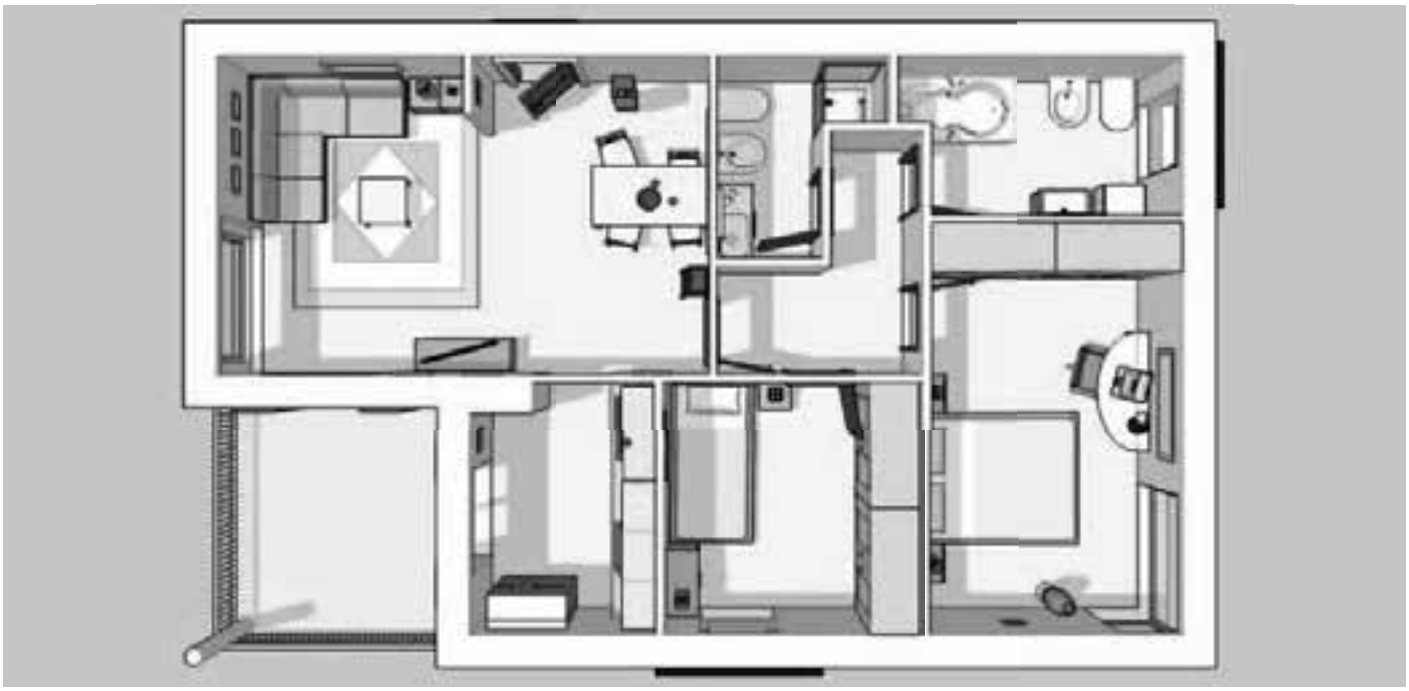
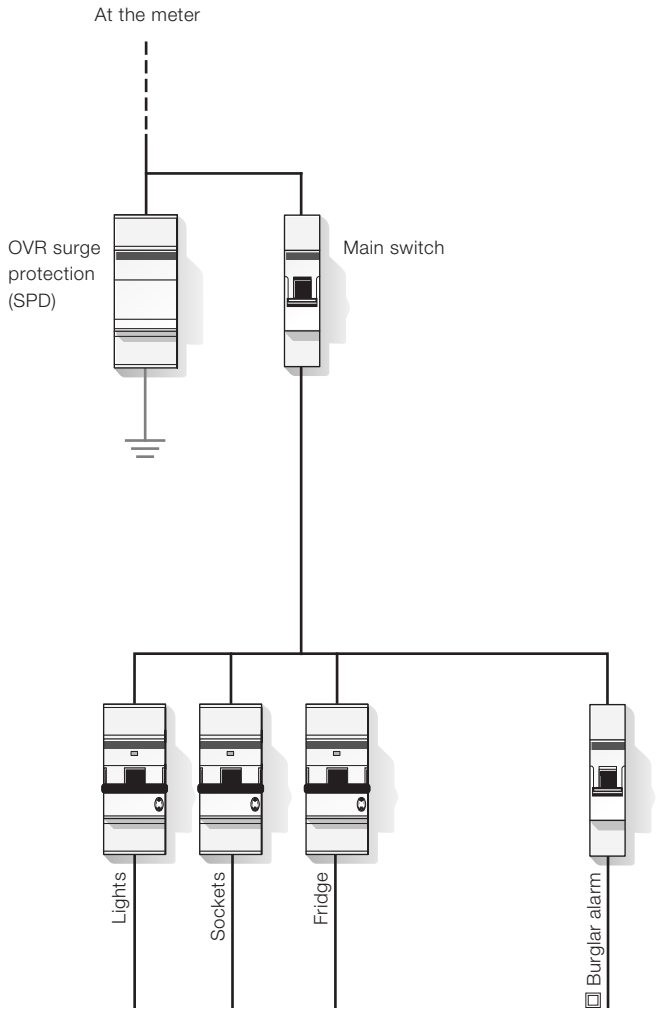


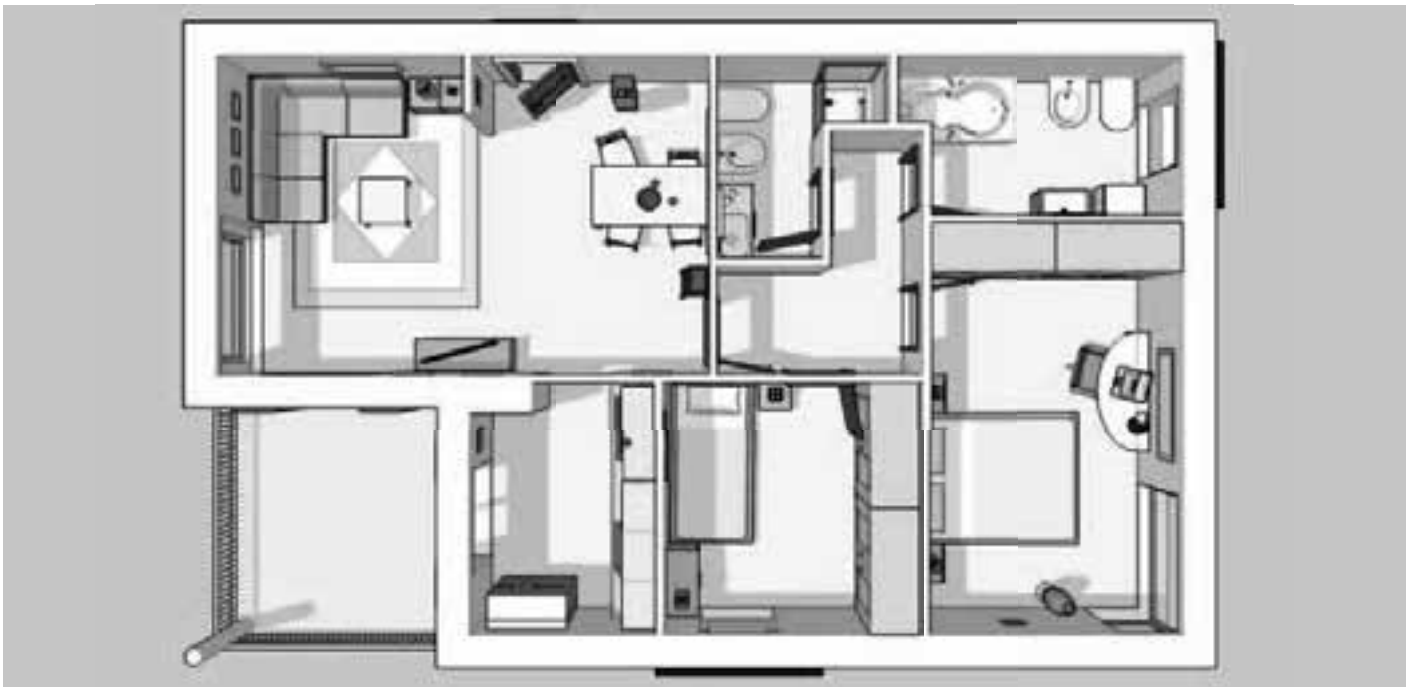
Small flat
In a small apartment plant simplicity and relative extension allows you to keep load subdivision to a minimum.



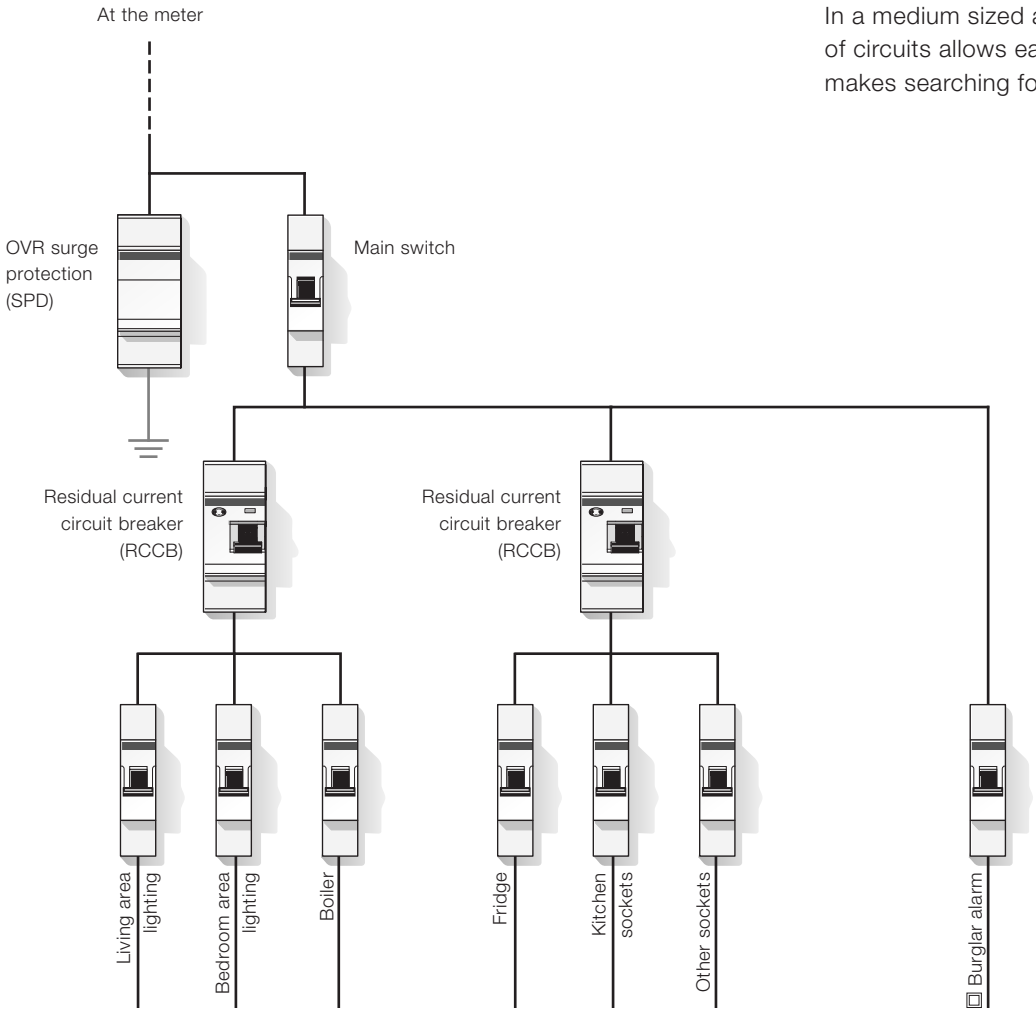
Small flat

For a minimum amount of selectivity you can give to each circuit a differential protection.

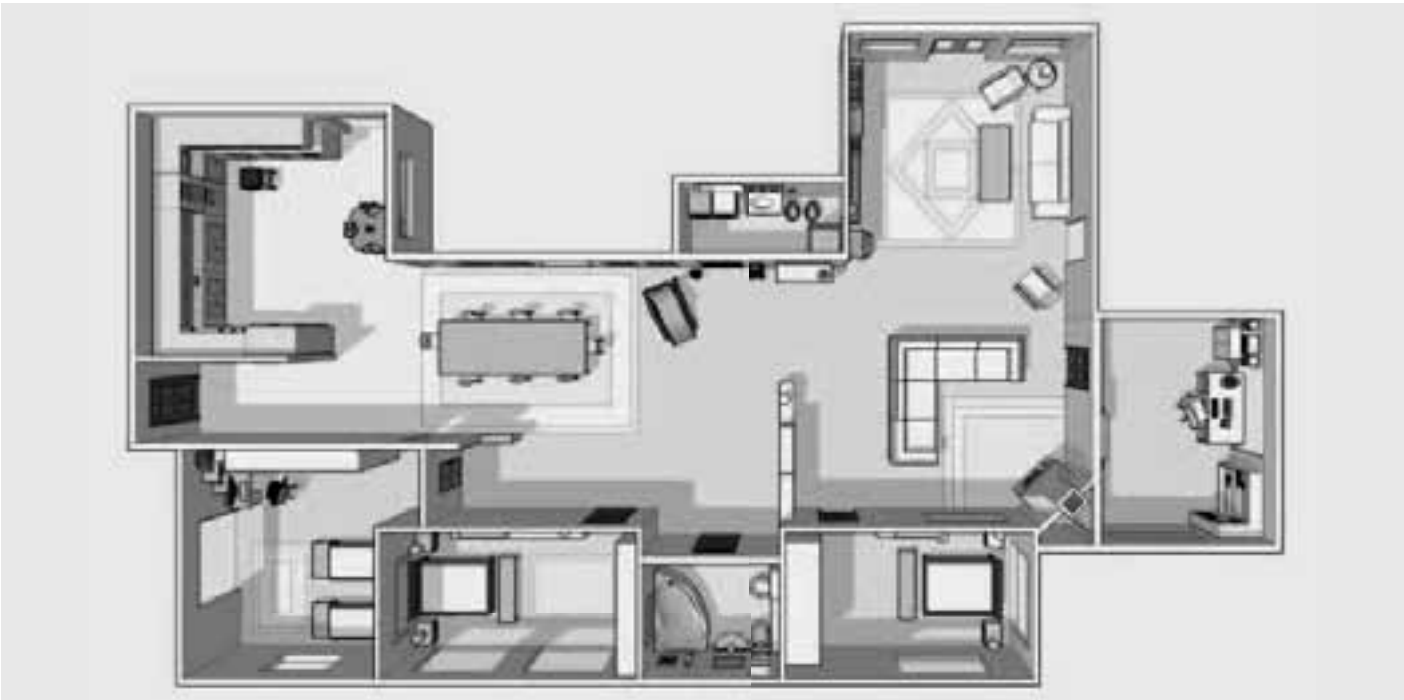




Efficiency, protection, comfort: measuring a system’s value

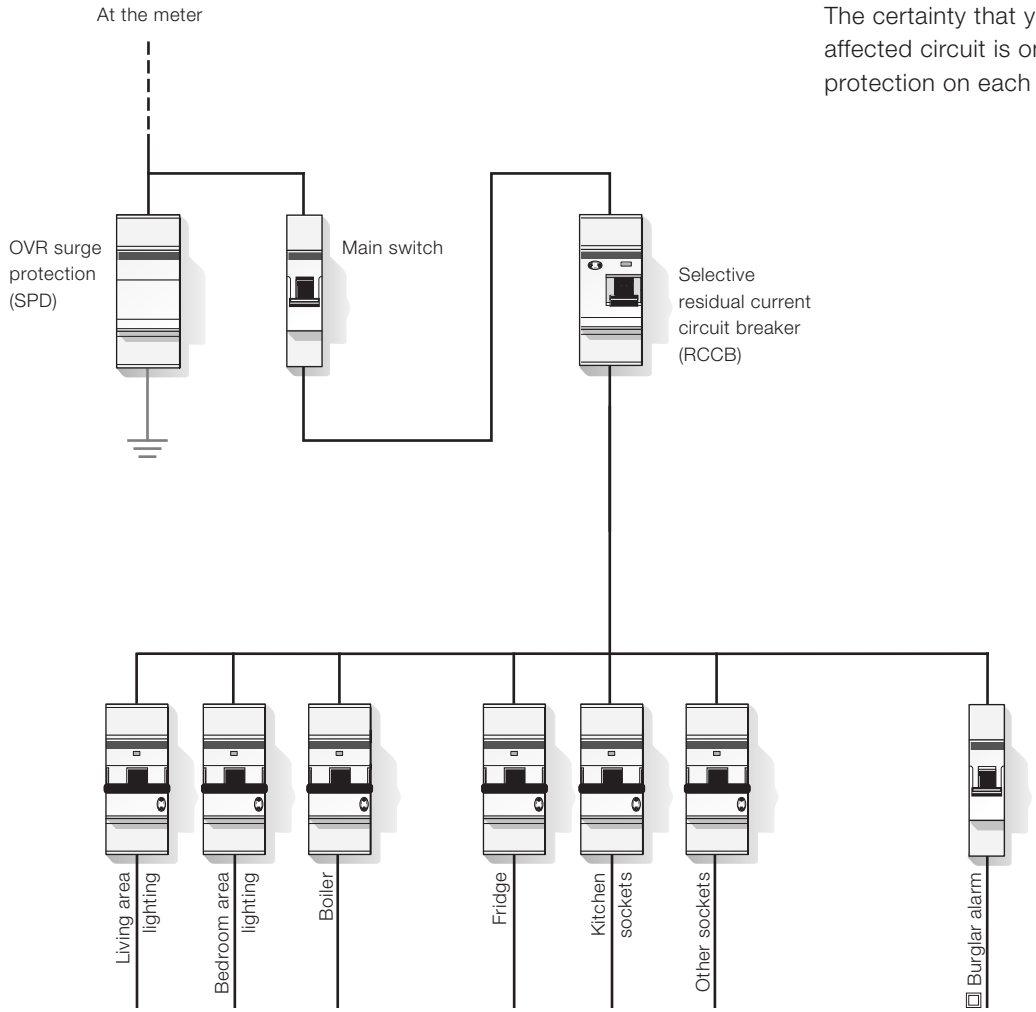


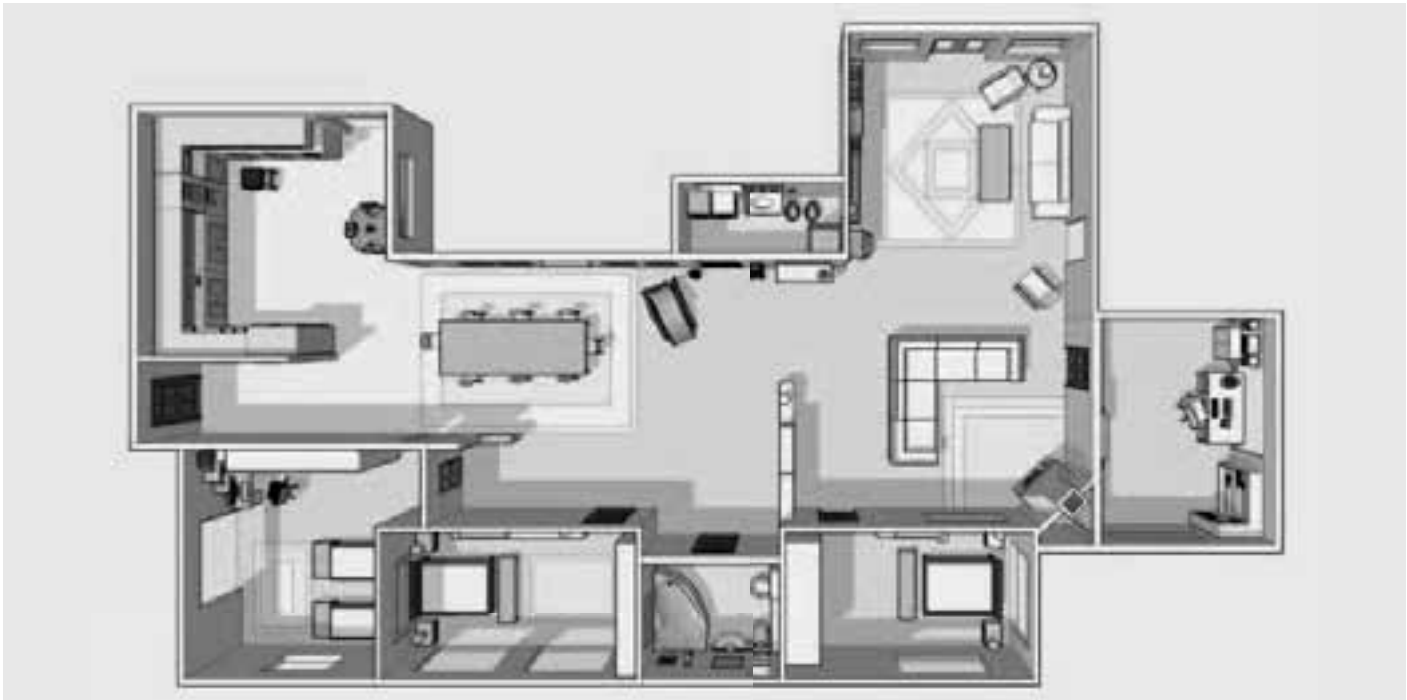
Medium flat
In a medium sized apartment the right subdivision of circuits allows easier plant management and makes searching for any breakdowns simpler.



Medium flat

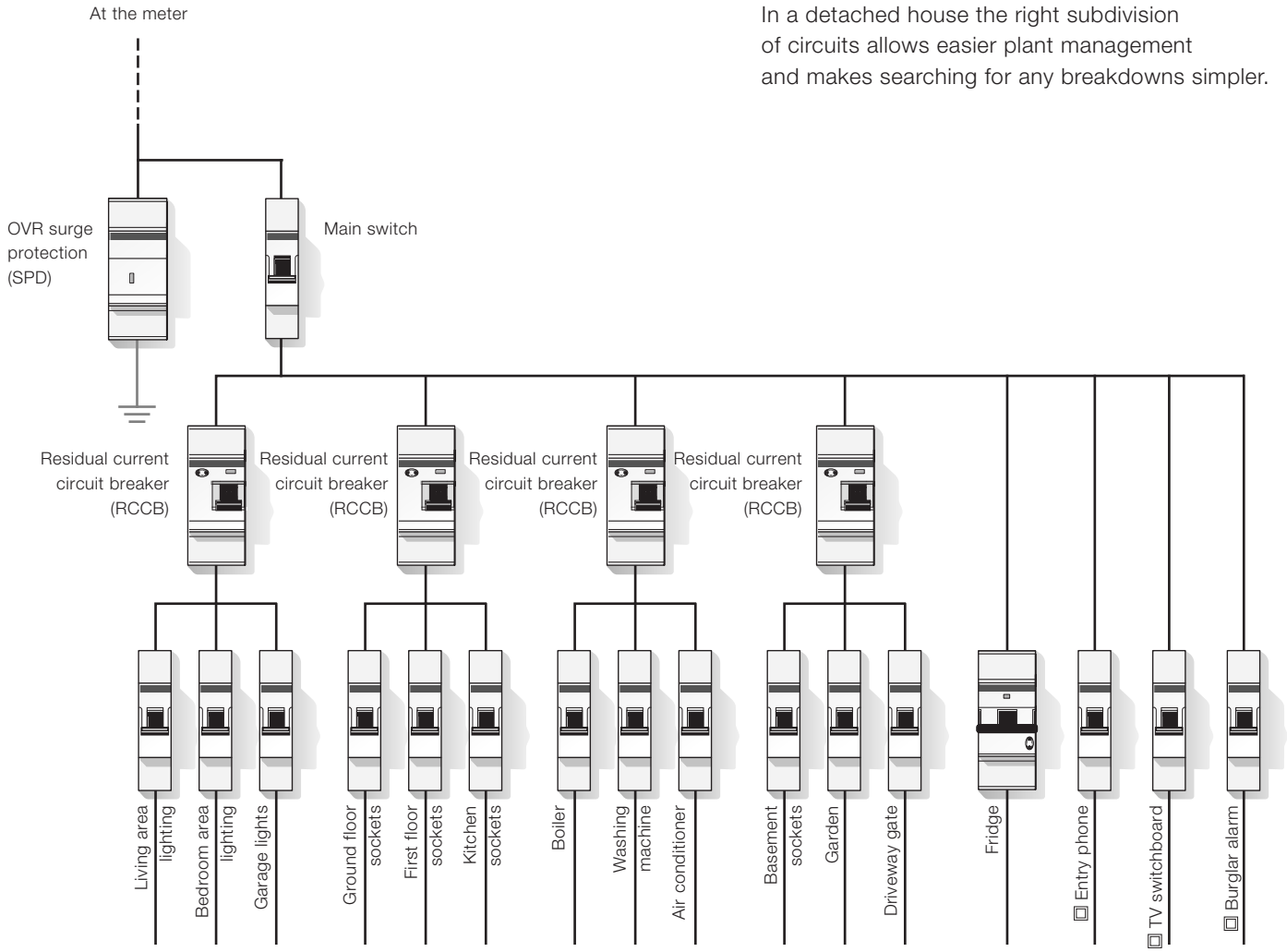
The certainty that you can just disconnect the fault affected circuit is only possible with differential protection on each single circuit.



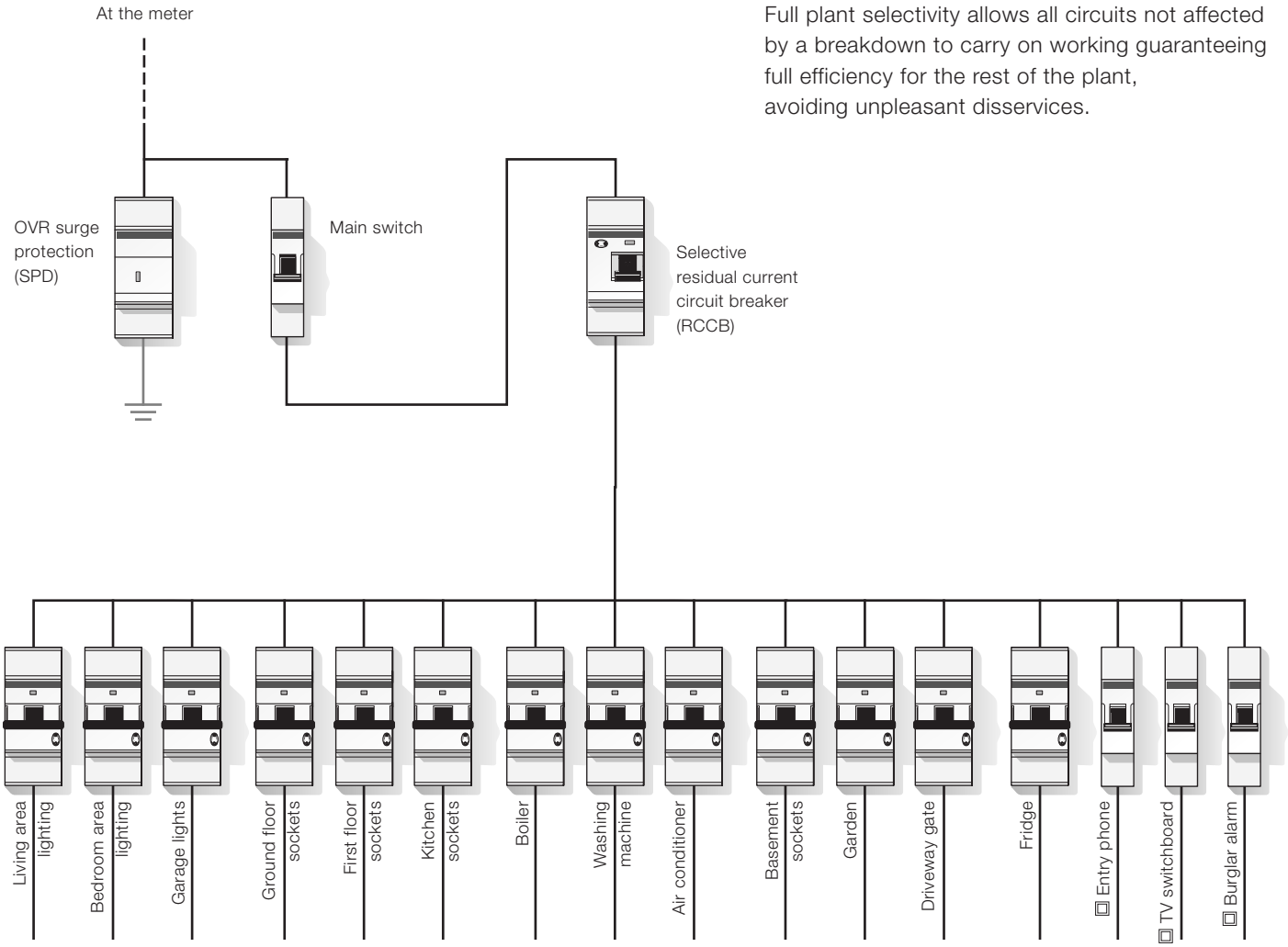


Efficiency, protection, comfort: measuring a system's value

Detached house
In a detached house the right subdivision of circuits allows easier plant management and makes searching for any breakdowns simpler.



Detached house
Full plant selectivity allows all circuits not affected by a breakdown to carry on working guaranteeing full efficiency for the rest of the plant, avoiding unpleasant disservices.

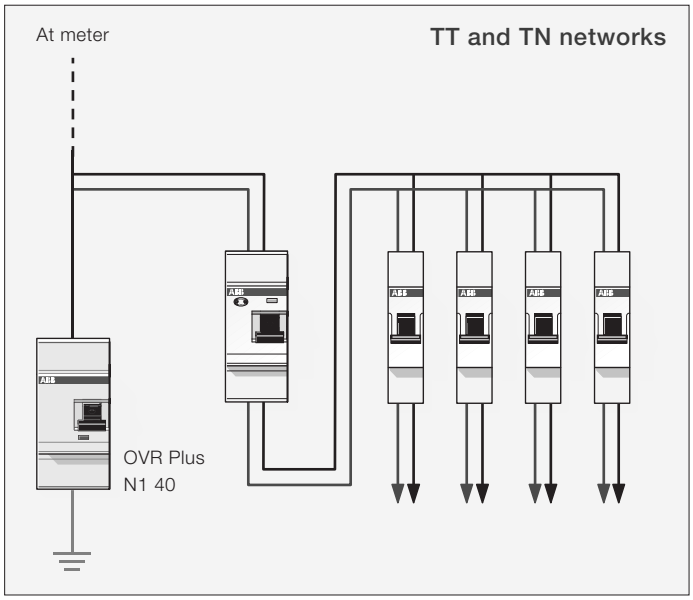


Application examples
OVR PLUS N1 40
Self-protected surge arrester

Operating principle
The OVR PLUS N1 self-protected surge arrester protects your equipment and installations without worrying about coordination with specific backup protection.

Application environments
The OVR PLUS N1 surge arresters are recommended for environments where it is necessary to have a safe, compact, easy to install surge protection solution.

Example of installation
One of the possible applications is to mount the OVR Plus N1 40 on a house's distribution board. The benefits of easy installation and minimum space requirements will save rooms and will safely protect your house against transient surges.

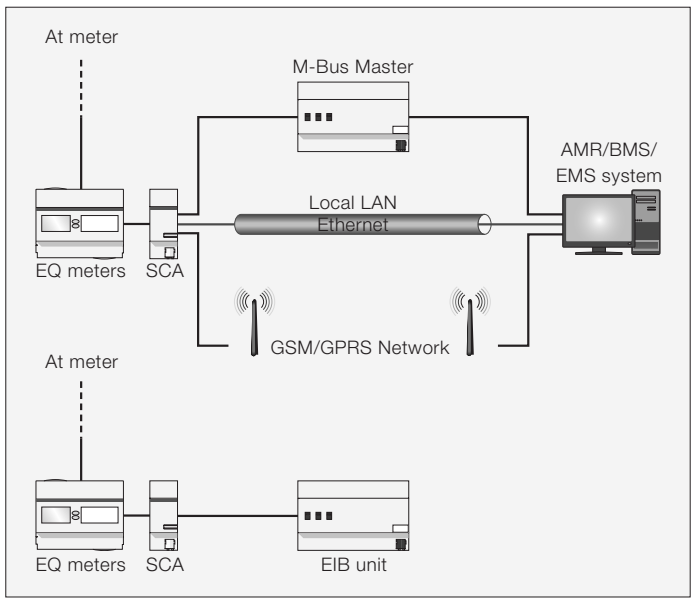


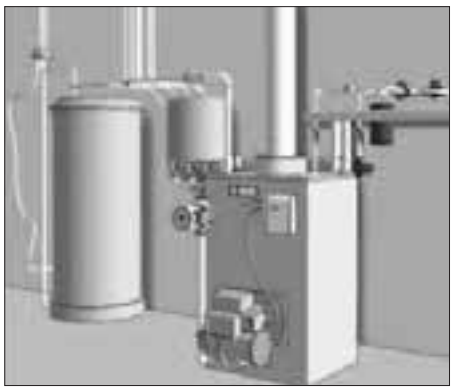
Application examples
EQ meters A-series
Electronic energy meter

Operating principle
EQ meters A-series are available for both single phase and three phase networks. They allow active energy or combined (active and reactive) energy to be measured.
EQ meters A-series measures in two directions, both import and export of energy. The meters are prepared for external communication via their built-in communication interface or via a serial communication adapter (SCA).

Application environments
The EQ meters A-series meters offers an ideal solution in measuring applications for electrical energy produced in a photovoltaic installation.

Example of installation
EQ meters A-series can be easily integrated into measured data collection systems via serial communication adapters. The devices are approved to the Measuring Instruments Directive (MID) European Directive 2004/22/EC.





Application examples
E 259 installation relays

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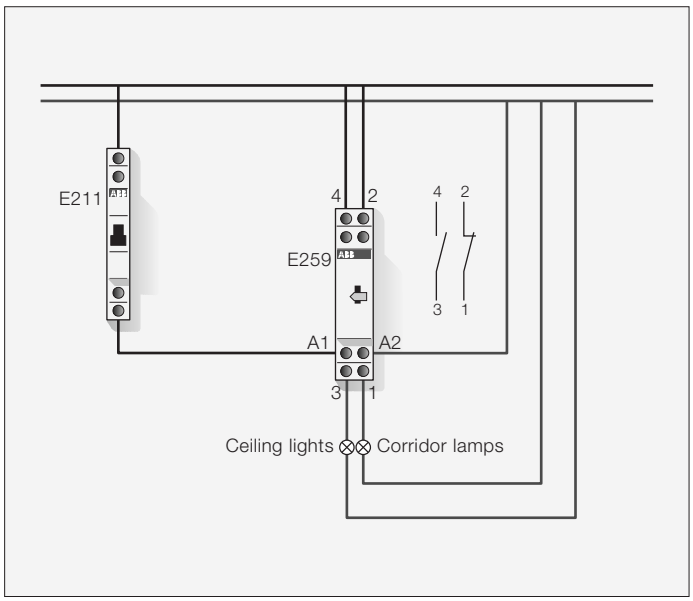
Operating principle
The E 259 installation relays are 16 A contactors specifically engineered for residential and commercial applications and are available in a wide range of contact layouts and coil voltages.

Application environments
The E 259 installation relays are particularly indicated in residential and commercial buildings for lighting control.

Example of installation
The E 259 16-11 installation relay can be installed with a NO and a NC contact inside the lighting system of the common areas of a building. The first control sent through a switch to the command circuit of the relay will turn off the ceiling lights and turn on the corridor lamps, while the second command returns to the previous state.

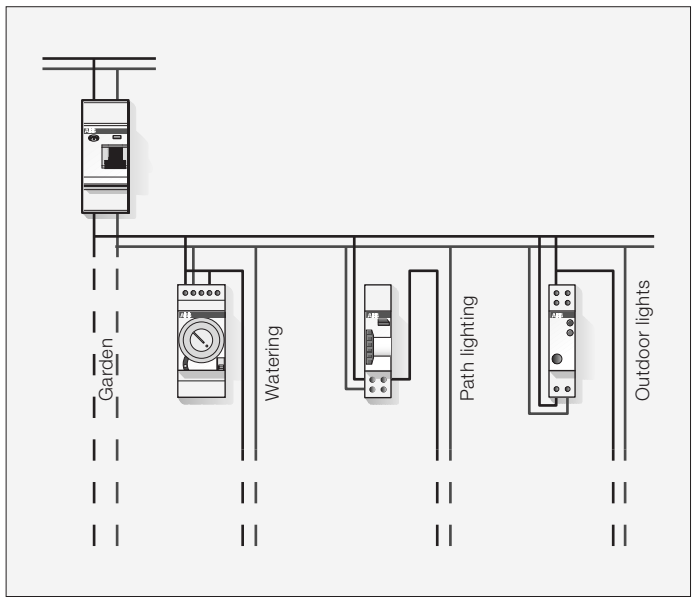


Application examples
AT electro-mechanical time switches

Operating principle
The AT electro-mechanical time switches enable to control the circuit opening/closing according to a daily or weekly program or to manually set permanent ON/OFF operation.

Application environments
The AT electro-mechanical time switches are particularly indicated in any environment and situation where it is necessary to program system load operation according to a daily or weekly frequency (shop lighting system, public buildings, heating systems, irrigation systems, etc.).

Example of installation
The AT3-7R electromechanical time switch can be assembled inside the power supply circuit of the garden. In this case the device programming enables the daily activation of the irrigation system at a preset time.



Application examples
D Line digital time switches

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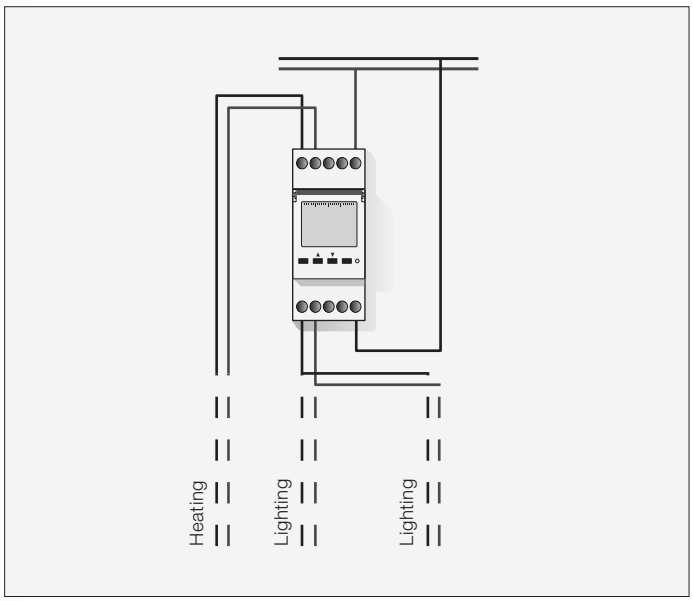
Operating principle
The D2 two-channel digital time switches enable to open and close circuits according to a daily or weekly program, controlling single loads or group of loads even when they require different time controls with a common time reference.

Application environments
The D2 two-channel digital time switches are particularly indicated in environments and situations requiring the management of multiple loads according to a time program flexible enough to include or exclude their application based on the day of the week (offices, schools, public areas, etc.).

Example of installation
In this example, the digital time switch D2 allows the operation of heating as well as lighting systems of a small office; during weekend the device only controls the heating system (programmed on one of the two channels), while on the resto f the week the lighting system is also switched on (through a program on the second channel).

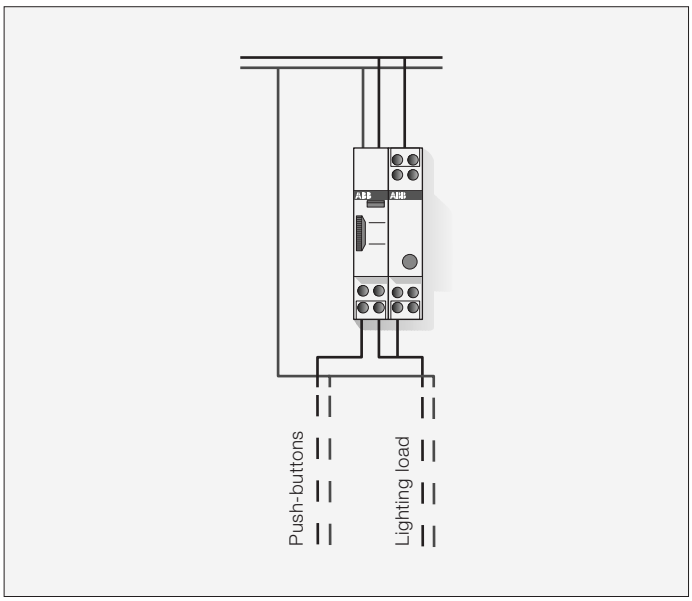


Application examples
E 232 staircase relays

Operating principle
Activated by a pulse command of a push-button, the E 232 staircase switch turns on the plant's light for a T1 time that can be protracted, with a 50% dimming of the light intensity, by means of the parallel wiring of a HLM half-light module.

Application environments
Installation of E 232 staircase switch, coupled with the HLM half-light module, can be ideal wherever timing of the lighting is requested (staircase and pathways of public places, cellars, garage, etc.).

Example of installation
One of possible applications of the E 232 staircase switch, coupled to a HLM half-light module, in the staircase lighting plant of a multistory building. Pushing the push-button, the timer of the E 232 switch turns on the lights for a settable T1 time. At the end of T1 time, the HLM half-light module dims the light by a 50% for a T2 time in the while is possible turn on again the full lighting.



Application examples
TWP twilight switches for pole mounting

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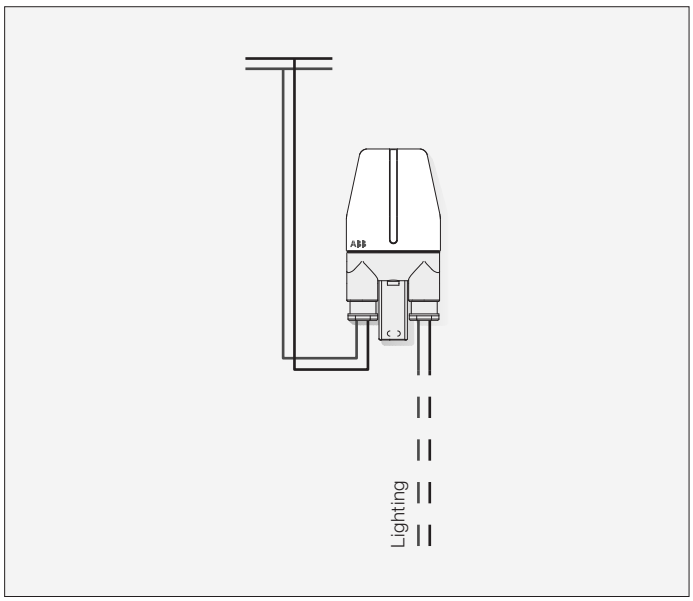
Operating principle
The TWP pole mounting switch equipped with an integrated photo-sensor preset at 10 Lux is the ideal solution for controlling external lighting systems. They are supplied with water-proof cable glands, user instructions printed on the back of the product and a pull-out sensor that allows fast, safe and error-proof maintenance operations.

Application environments
The pole mounting TWP twilight switch installation can be ideal to light command in private parking areas thanks to its capability of installation in pole, lamppost, etc.

Example of installation
One of the possible applications concern the installation of a pole mounting TWP twilight switch in lighting plant. When daylight dims below a set level (e.g. during twilight) the switch turns on the lighting devices, assuring the requested lighting. At dawn, when the light raise above the set threshold, the relays of TWP returns in open position.

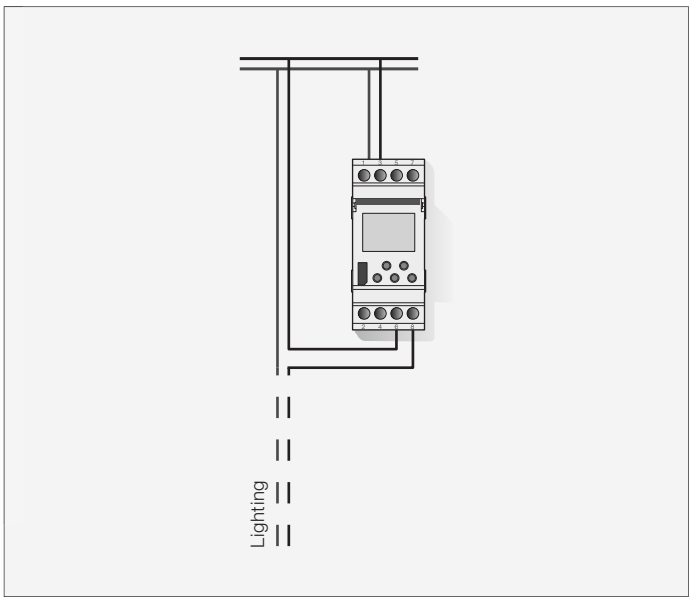


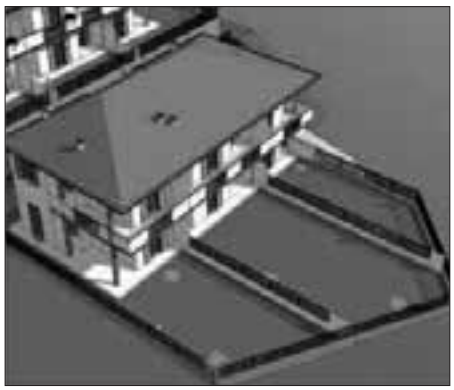
Application examples
TWA twilight switches

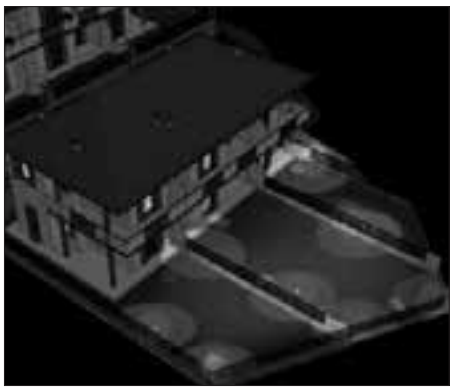
Operating principle
Installation of a twilight astronomical switch in a system is particularly useful in places and situations where light sources or other environmental conditions may cause changes in the Lux level. In these cases, TWA-1 and TWA-2 enable control of the lighting system depending on the time when the sun rises and sets, based on the geographic location where they are installed.

Application environments
The TWA-1 and TWA-2 twilight astronomical switches are particularly suitable for use in applications where the operation of a twilight switch with external sensor is potentially subject to alteration or damage from external agents (e.g. smog, overexposure to light, vandalism etc.).

Example of installation
One cause of reductions in the level of ambient light is atmospheric smog. Particle deposits on the external sensor of a traditional twilight switch can over time compromise its operation, preventing the activation of the lighting systems controlled. As illustrated in the diagrams, it is possible to counter this type of problem by installing a TWA twilight astronomical switch, which controls the lighting based on the ambient light level calculated from the preset longitude and latitude parameters.







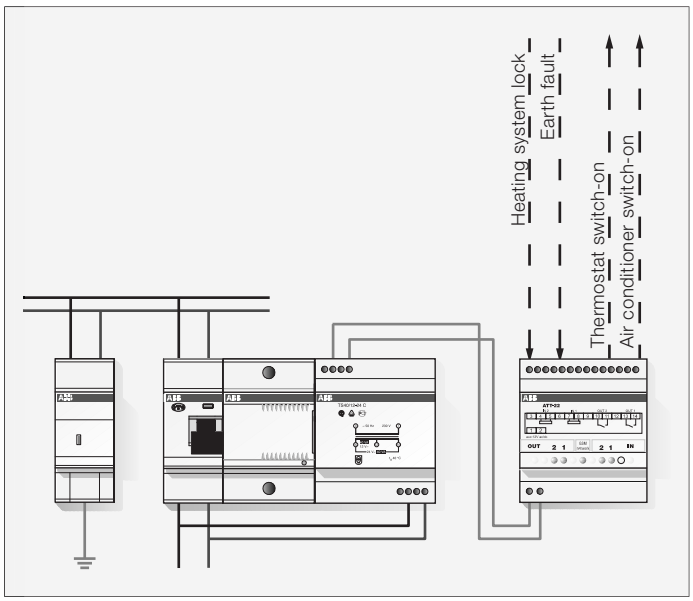
Application examples
ATT-22 GSM modules

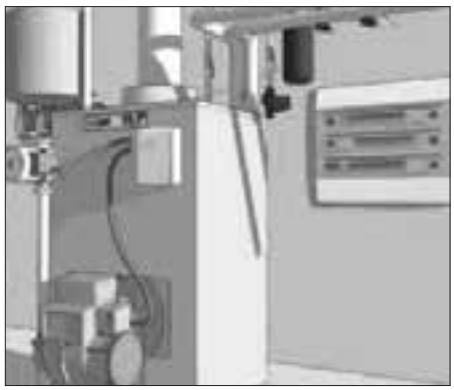
1

Operating principle
ATT-22 module is a GSM terminal with 2 outputs and 2 inputs for transmitting commands and alarms via SMS message, free phone call ring, fax or e-mail. Configuration is accomplished by means of SMS messages, or using the ATT-Tool software with ATT-22 connected to a PC.

Application environments
The ATT-22 module is especially suited for residential and services-sector installations in which loads need to be remotely monitored or controlled. ATT-22E version is equipped with a pre-wired external antenna, indispensable when the module is installed in places that do not guarantee adequate GSM coverage.

Example of installation
The figures illustrate an example application in which ATT-22 module is installed in the control panel of a second home in the mountains.
With a cell phone call ring to ATT-22, it is possible to switch on the boiler just before arriving at the house, or to keep it continually in operation. In the event of a problem with the boiler, ATT-22 sends a notification SMS.



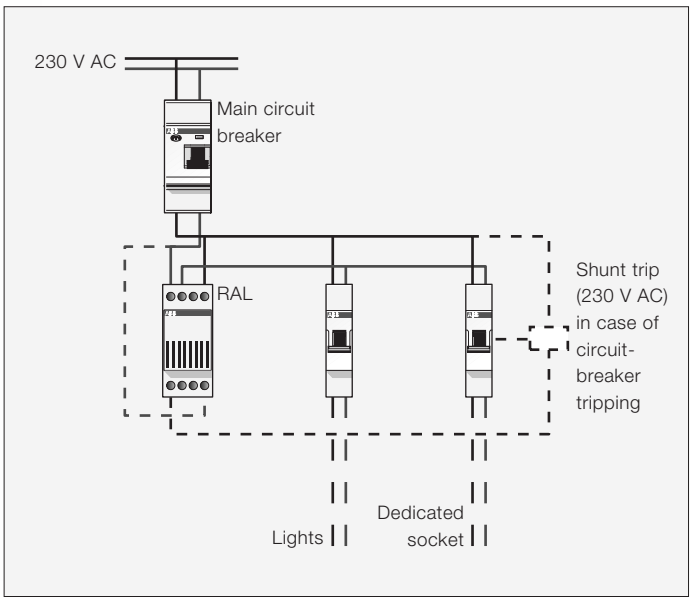


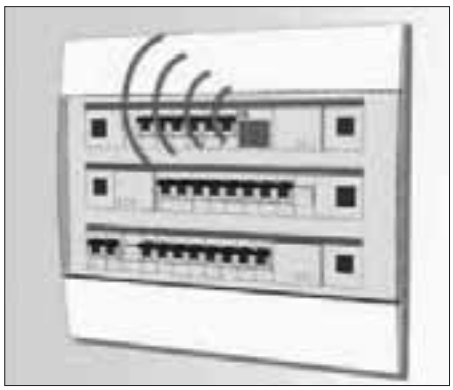
Application examples
RAL overload alarms

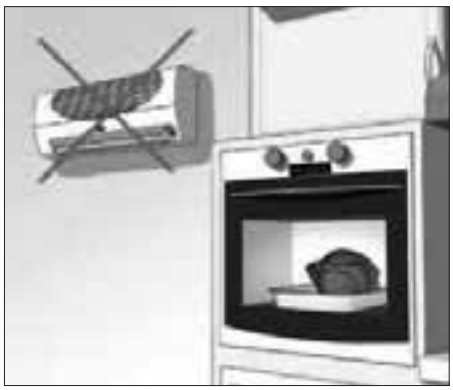
Operating principle
The RAL overload alarms constantly compare the maximum preset power consumption value to effective system power consumption. Approaching allowed threshold, they signal to disconnect one of the loads through acoustic alarm avoiding the main circuit breaker tripping. Connecting the undervoltage release to the appropriate contact, the RAL overload alarms provide an acoustic alarm and simultaneously opens the circuit-breaker protecting one or more not primary loads.

Application environments
The installation of the RAL overload alarms is suitable for any environment and situation in order to avoid power consumption which could trip the limiting circuit breaker of the system.

Example of installation
As shown in the diagrams, one of the possible applications is the installation of the RAL overload alarms in the domestic system where the electric oven and washing machine are simultaneously switched on increasing the power consumption. When the power consumption approaches the preset threshold values, an acoustic alarm is activated and the washing machine switches off automatically through an undervoltage release.







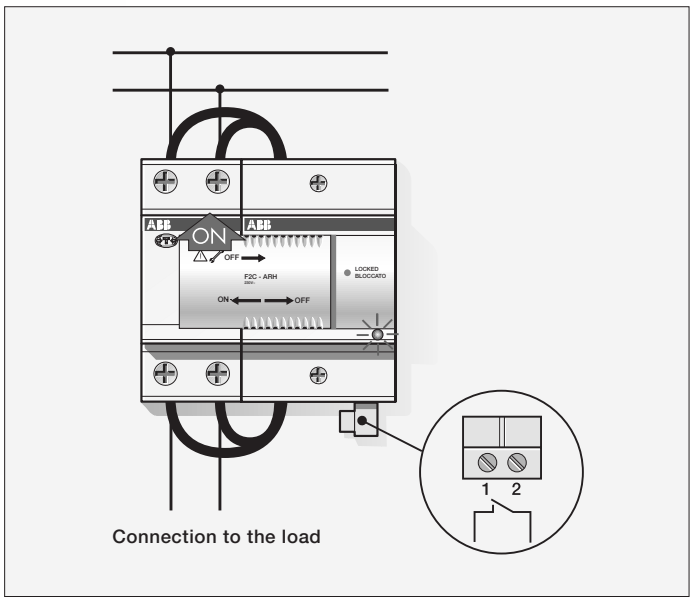
Application examples
F2C-ARH

1

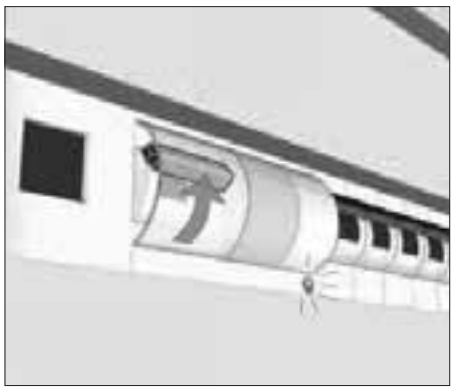
Operating principle
The GreenLight F2C-ARH automatically recloses the associated residual current device (2 poles RCCBs up to 63A - 30 mA or 100mA, depending on F2C-ARH version), after first checking that there isn't an insulation fault on the circuit protected by the RCCB.

Application environments
The GreenLight F2C-ARH is suitable for installation in any TT and TN distribution system and it has been designed to always maintain continuity of service in case of nuisance trippings caused by storms or electrical disturbances, restoring current to all connected utilities after verifying the correct state of the system.

Example of installation
An ideal application of auto-reclosing device F2C-ARH is related to home distribution systems.
This is particularly useful to preserve the critical loads - for example to avoid alarm system wrong intervention, irrigation stops or defrost of the freezer - during holidays or when the home is not manned, even for short periods.



Connection to the load

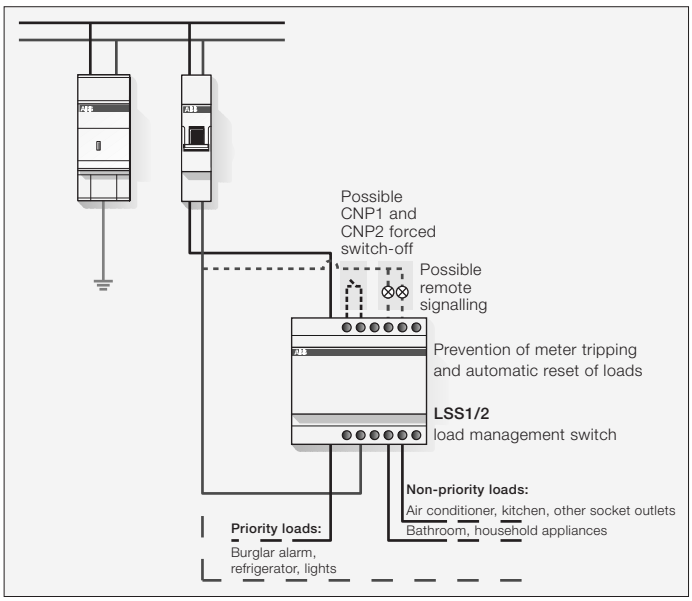


Application examples
LSS

Operating principle
LSS1/2 load shedding switches are used in case of exceeding of consumption threshold allowed in the system by switching off in sequence one or two loads, if necessary. At preset intervals and until current consumption is not below the reference level, the switch tries to reset the disconnected loads.

Application environments
The installation of the LSS1/2 load shedding switches is suitable for any environment and situation where it is necessary to control electric energy consumption within consumption limits allowed in the system.

Example of installation
As shown in the diagrams, one of the possible applications is the installation of the LSS1/2 load shedding switches in a printing office system, where the conditioning switch-on causes the exceeding of the energy consumption threshold defined with the supplying company by contract. The LSS1/2 load shedding switch preserves printing machines operation by switching off one or two primary loads automatically (i.e. night conditioning and lighting), where ON red leds indicate temporary OFF. After a preset interval, the switch checks that current consumption values fall within the limits again trying to reset the previously disconnected loads.

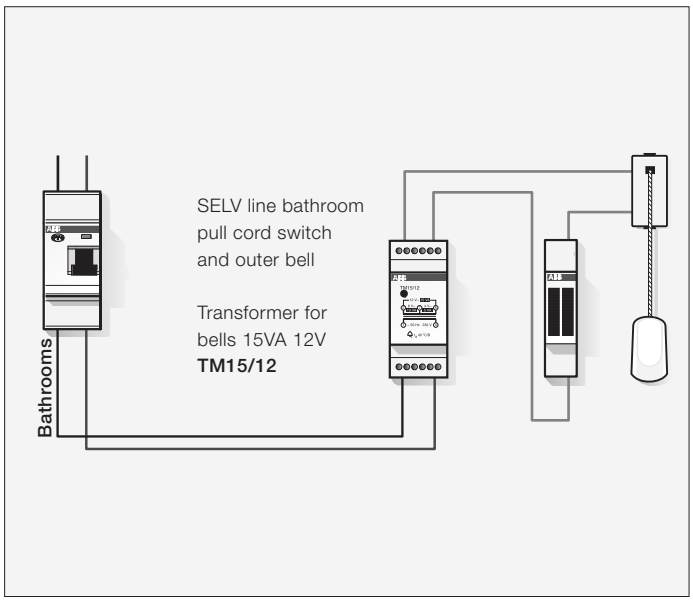


Application examples
TM, SM

1

Operating principle
A residual current circuit breaker with Idn equal to 10 mA installed on the bathroom circuits ensures better protection against indirect contacts. The residual current circuit breaker may be installed directly on the control board.

Application environments and example of installation
The SELV circuit guarantees safe power supply where the risk of accident is higher, such as near the bathtub.



Protection

Constant attention Protection, selectivity and savings: ABB's mission for your home

Protecting the electrical system is an essential step to ensure safety and comfort to its users, as well as the correct economical and functional operation of the devices it supplies.

Protection aims at minimizing risks for people and devices due to abnormal conditions or faults that impair the electrical parameters of the installation and of the loads.
In this context, an adequate coordination between the various protection devices (normally located on the sections of the system or on specific components) and an appropriate degree of selectivity enable to provide total safety of the installation.
For the system to operate properly, protection has to allow quick identification and exclusion of the area affected by the problem, without hasty, inappropriate or untimely actions that may compromise the power supply to the unaffected areas.
In case of tripping of a protection device, the maintenance personnel should have clear and essential information rapidly available in order to restore the service as quickly as possible.
A protection system must also provide adequate flexibility and include reserve mechanisms, in case of malfunctioning of the main protection unit.

For a good compromise between reliability, simplicity and convenience, a protection system must be able to identify how and where the fault occurred, differentiating between abnormal but tolerable situations and actual situations. It is imperative to act as quickly as possible to minimize risks and damage (destruction, accelerated aging, etc.), safeguarding the continuity and stability of power supply.
Along with their quality, ease of installation the modular products for DIN rail proposed by the ABB Compact Home catalogue combine features that enable to reconcile two seemingly conflicting needs: accurate identification of the fault and effectiveness of action.
Although a marked selectivity of protective devices is rarely required by the applicable regulations and may seem unwarranted, designing a selective system means choosing a much more efficient, cost-effective solution, suited to the needs of the users and perfectly made, beyond the simple regulatory aspect.

Miniature circuit-breakers

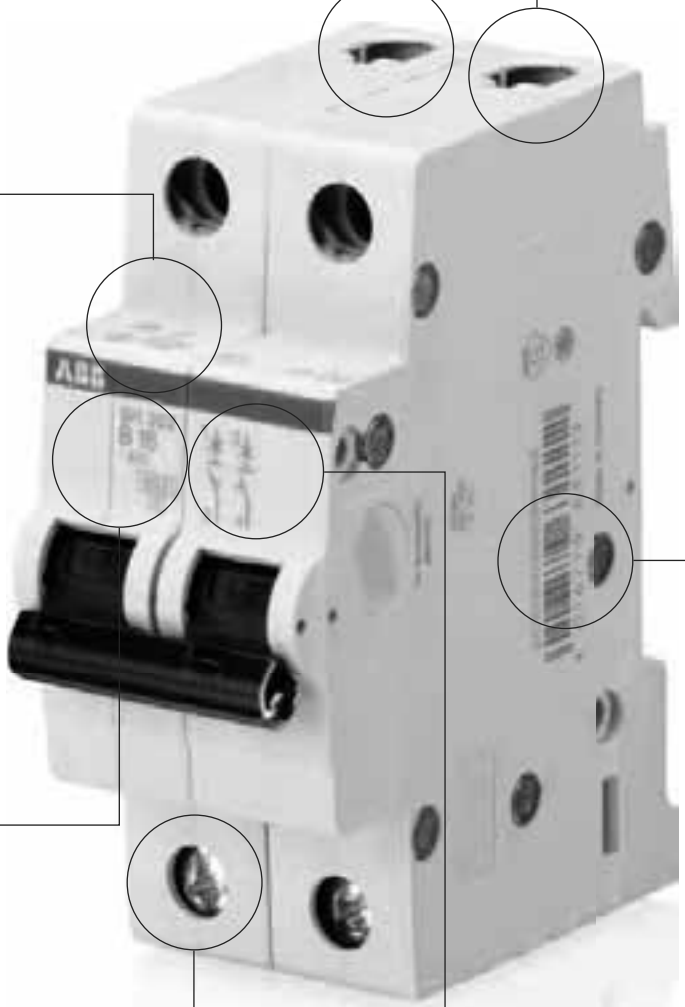
SH 200

MCB SH 200. The details make the difference
A range designed to ensure efficiency and protection

25 mm² cage terminals, a well proven and reliable technology.

IP20 - finger safety.

Scratch and solvent resistant marking due to laser printing. Easy identification of the products in case of maintenance or replacements.



Laser printed EAN code. Easy integration into merchandise management systems and quick identification of devices.

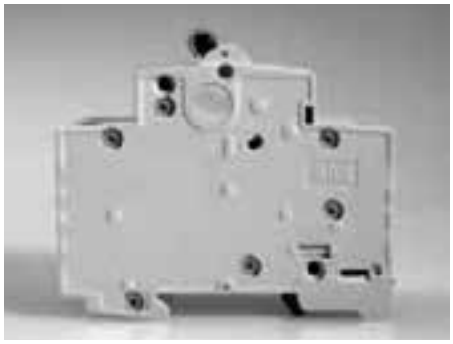
Easy product coding - easy identification - easy life. Basic technical information already integrated into the name.

Wiring diagram and basic technical specification printed on the front of the MCB. Save your time - all important data available right away.

Don't loose what's important for you - captive screws.

CPI
All Compact Home MCBs are suited with a contact position indication (CPI) on the toggle. You can easily identify, if the MCB is in ON or OFF position – **easy and safe maintenance work is possible.**

Approvals printed on the dome
SH 200 MCBs comply to IEC/EN 60898 and carry all relevant approval marks for each market they are destined to. The certification marks are also printed printed on the dome of the MCB. Thus make it possible to see the markings also in the mounted position. **For control and acceptance procedure – certification marks visible on fitted devices on the side of mounting.**



Housing material
By using the state-of-the-art housing material, ABB is taking care of the environment. With the latest generation of thermoplastics it's possible to recycle the MCBs – especially the thermoplastic housing-material can be re-used. By using the latest generation of thermoplastics the material stability of all Compact Home MCBs is improved. **Residential MCBs are free of halogens – no environmental pollution.**

Laser printing
All printings of the Compact Home MCBs, like the approvals on the dome, the product identification, are printed by a laser. The laser printing ensures a friction, scratch and solvent resistant marking on the MCBs.
Easy identification of the products in case of maintenance or replacements due to safe laser printing.

Connection of SH and S
Compatibility with System pro *M* compact® is given in all kind of variations like insertion of 1 System pro *M* compact® MCB (e.g. K-characteristic) into an Installation with Compact Home components and Compact Home busbars. Also the combination of 1 Compact Home MCB with System pro *M* compact® components and System pro *M* compact® busbars is not a problem.

Terminals
The MCBs Compact Home are equipped with 25 mm cage terminals, a well proven and reliable technology. The cross wiring can easily be done by inserting the Compact Home busbars and then the incoming wires into one of the MCB's terminals.
The terminals accept Compact Home busbars and conductors up to 16 mm^2 together.

Technical features table for miniature circuit-breakers SH 200 Series

Standards		
Poles		
Tripping characteristics		
Rated current I_n	A	
Rated frequency f	Hz	
Rated insulation voltage U_i acc. to IEC/EN 60664-1	V	
Overvoltage category		
Pollution degree		
Data acc. to IEC/EN 60898-1		
Rated operational voltage U_n	V	
Max. power frequency recovery voltage (U_{max})	V	
Min. operating voltage	V	
Rated short-circuit capacity I_{cn}	kA	
Energy limiting class (B, C up to 40 A)		
Rated impulse withstand voltage U_{imp} (1.2/50µs)	kV	
Dielectric test voltage	kV	
Reference temperature for tripping characteristics	°C	
Electrical endurance	ops.	
Mechanical Data		
Housing		
Toggle		
Contact position indication		
Protection degree acc. to EN 60529		
Mechanical endurance	ops.	
Shock resistance acc. to IEC/EN 60068-2-27		
Vibration resistance acc. to IEC/EN 60068-2-6		
Environmental conditions (damp heat cyclic) acc. to IEC/EN 60068-2-30	°C/RH	
Ambient temperature	°C	
Storage temperature	°C	
Installation		
Terminal		
Cross-section of conductors (top / bottom)	mm^2	
Torque	Nm	
Screwdriver		
Mounting		
Mounting position		
Supply		
Dimensions and weight		
Mounting dimensions acc. to DIN 43880		
Pole dimensions (H x D x W)	mm	
Pole weight	g	
Combination with aux. elements		
Accessories mountable		

* Also fulfilling the requirement acc. to the protection degree IPXXB

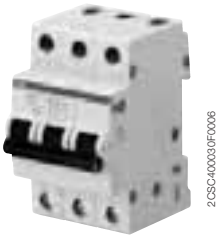
SH 200	SH 200 L	SH 200 T
IEC/EN 60898-1		
1P, 2P, 3P, 4P, 1P+N, 3P+N		
B, C		
6…40 A		
50 / 60 Hz		
250 V AC (phase to ground) , 440 V AC (phase to phase)		
III		
2		
1P: 230/400 V AC; 1P+N: 230 V AC; 2...4P: 400 V AC; 3P+N: 400 V AC		
1P: 253 V AC; 1P+N: 253 V AC; 2...4P: 440 V AC; 3P+N: 440 V AC		
12 V AC		
6 kA	4.5 kA	3 kA
3		
4 kV (test voltage 6.2kV at sea level, 5kV at 2,000m)		
2 kV (50 / 60Hz, 1 min.)		
B, C: 30°C		
I_n < 32A: 20,000 ops (AC), I_n ≥ 32A: 10,000 ops. (AC); 1,000 ops. (DC); 1 cycle (2s - ON, 13s - OFF, I_n ≤ 32A), 1 cycle (2s - ON, 28s - OFF, I_n > 32A)		
Insulation group II, RAL 7035		
Insulation group II, black, sealable		
Marking on toggle (I ON / 0 OFF)		
IP20*, IP40 in enclosure with cover		
20,000 ops.		
25 g - 3 shocks - 11 ms		
5g - 20 cycles at 5…150…5 Hz with load 0.8 I_n		
28 cycles with 55°C/90-96% and 25°C/95-100%		
-25 … +55°C		
-40 … +70°C		
Cage Terminal		
25 mm^2 / 25 mm^2		
2.0 Nm		
No. 2 Pozidrive		
On DIN rail 35 mm acc. to EN 60715 by fast clip		
any		
optional		
Mounting dimension 1		
85 x 69 x 17.5 mm		
ca. 115 g		
No		

Ordering Information
MCB SH 200 T Series - B characteristic

SH201T-B

SH201T-B...NA

SH202T-B



SH203T-B

The SH 200 miniature circuit breaker is perfectly suitable for protecting lighting and power socket circuits that can be frequently found in residential areas. ABB used its years of experience with miniature circuit breaker to create this product by combining the optimum features for residential use alone.
The Compact Home range is versatile to provide the customer with the perfect solution for residential over current protection. It is available in tripping characteristics B and C type; with breaking capacities between 3 and 6 kA. As usual for ABB miniature circuit breaker, SH 200 is available from one to four poles and additional in one & three pole plus Neutral. The rated currents are limited to 6 A up to 40 A as it is common in residential applications.

N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1	6	1	631921	SH201T-B6	2CDS231001R0065		0.125	10
	10	1	631952	SH201T-B10	2CDS231001R0105		0.125	10
	13	1	631976	SH201T-B13	2CDS231001R0135		0.125	10
	16	1	631990	SH201T-B16	2CDS231001R0165		0.125	10
	20	1	632010	SH201T-B20	2CDS231001R0205		0.125	10
	25	1	632034	SH201T-B25	2CDS231001R0255		0.125	10
	32	1	632058	SH201T-B32	2CDS231001R0325		0.125	10
	40	1	632072	SH201T-B40	2CDS231001R0405		0.125	10
1+N	6	2	632096	SH201T-B6NA	2CDS231103R0065		0.25	5
	10	2	632126	SH201T-B10NA	2CDS231103R0105		0.25	5
	13	2	632140	SH201T-B13NA	2CDS231103R0135		0.25	5
	16	2	632164	SH201T-B16NA	2CDS231103R0165		0.25	5
	20	2	632188	SH201T-B20NA	2CDS231103R0205		0.25	5
	25	2	632201	SH201T-B25NA	2CDS231103R0255		0.25	5
	32	2	632225	SH201T-B32NA	2CDS231103R0325		0.25	5
	40	2	632249	SH201T-B40NA	2CDS231103R0405		0.25	5
2	6	2	632263	SH202T-B6	2CDS232001R0065		0.25	5
	10	2	632294	SH202T-B10	2CDS232001R0105		0.25	5
	13	2	632317	SH202T-B13	2CDS232001R0135		0.25	5
	16	2	632331	SH202T-B16	2CDS232001R0165		0.25	5
	20	2	632355	SH202T-B20	2CDS232001R0205		0.25	5
	25	2	632379	SH202T-B25	2CDS232001R0255		0.25	5
	32	2	632393	SH202T-B32	2CDS232001R0325		0.25	5
	40	2	632416	SH202T-B40	2CDS232001R0405		0.25	5
3	6	3	632430	SH203T-B6	2CDS233001R0065		0.375	1
	10	3	632461	SH203T-B10	2CDS233001R0105		0.375	1
	13	3	632485	SH203T-B13	2CDS233001R0135		0.375	1
	16	3	632508	SH203T-B16	2CDS233001R0165		0.375	1
	20	3	632522	SH203T-B20	2CDS233001R0205		0.375	1
	25	3	632546	SH203T-B25	2CDS233001R0255		0.375	1
	32	3	632560	SH203T-B32	2CDS233001R0325		0.375	1
	40	3	632584	SH203T-B40	2CDS233001R0405		0.375	1

SH203T-B...NA

SH204T-B

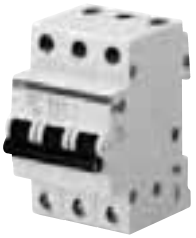
N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
3+N	6	4	632607	SH203T-B6NA	2CDS233103R0065		0.5	1
	10	4	632638	SH203T-B10NA	2CDS233103R0105		0.5	1
	13	4	632652	SH203T-B13NA	2CDS233103R0135		0.5	1
	16	4	632676	SH203T-B16NA	2CDS233103R0165		0.5	1
	20	4	632690	SH203T-B20NA	2CDS233103R0205		0.5	1
	25	4	632713	SH203T-B25NA	2CDS233103R0255		0.5	1
	32	4	632737	SH203T-B32NA	2CDS233103R0325		0.5	1
	40	4	632751	SH203T-B40NA	2CDS233103R0405		0.5	1
4	6	4	632775	SH204T-B6	2CDS234001R0065		0.5	1
	10	4	632805	SH204T-B10	2CDS234001R0105		0.5	1
	13	4	632829	SH204T-B13	2CDS234001R0135		0.5	1
	16	4	632843	SH204T-B16	2CDS234001R0165		0.5	1
	20	4	632867	SH204T-B20	2CDS234001R0205		0.5	1
	25	4	632881	SH204T-B25	2CDS234001R0255		0.5	1
	32	4	632904	SH204T-B32	2CDS234001R0325		0.5	1
	40	4	632928	SH204T-B40	2CDS234001R0405		0.5	1

Ordering Information
MCB SH 200 T Series - C characteristic

SH201T-C

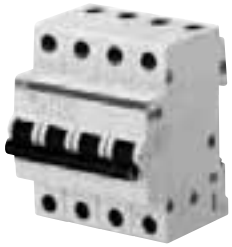
SH201T-C...NA

SH202T-C



SH203T-C

N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1	6	1	631914	SH201T-C6	2CDS231001R0064		0.125	10
	8	1	631938	SH201T-C8	2CDS231001R0084		0.125	10
	10	1	631945	SH201T-C10	2CDS231001R0104		0.125	10
	13	1	631969	SH201T-C13	2CDS231001R0134		0.125	10
	16	1	631983	SH201T-C16	2CDS231001R0164		0.125	10
	20	1	632003	SH201T-C20	2CDS231001R0204		0.125	10
	25	1	632027	SH201T-C25	2CDS231001R0254		0.125	10
	32	1	632041	SH201T-C32	2CDS231001R0324		0.125	10
	40	1	632065	SH201T-C40	2CDS231001R0404		0.125	10
1+N	6	2	632089	SH201T-C6NA	2CDS231103R0064		0.25	5
	8	2	632102	SH201T-C8NA	2CDS231103R0084		0.25	5
	10	2	632119	SH201T-C10NA	2CDS231103R0104		0.25	5
	13	2	632133	SH201T-C13NA	2CDS231103R0134		0.25	5
	16	2	632157	SH201T-C16NA	2CDS231103R0164		0.25	5
	20	2	632171	SH201T-C20NA	2CDS231103R0204		0.25	5
	25	2	632195	SH201T-C25NA	2CDS231103R0254		0.25	5
	32	2	632218	SH201T-C32NA	2CDS231103R0324		0.25	5
	40	2	632232	SH201T-C40NA	2CDS231103R0404		0.25	5
2	6	2	632256	SH202T-C6	2CDS232001R0064		0.25	5
	8	2	632270	SH202T-C8	2CDS232001R0084		0.25	5
	10	2	632287	SH202T-C10	2CDS232001R0104		0.25	5
	13	2	632300	SH202T-C13	2CDS232001R0134		0.25	5
	16	2	632324	SH202T-C16	2CDS232001R0164		0.25	5
	20	2	632348	SH202T-C20	2CDS232001R0204		0.25	5
	25	2	632362	SH202T-C25	2CDS232001R0254		0.25	5
	32	2	632386	SH202T-C32	2CDS232001R0324		0.25	5
	40	2	632409	SH202T-C40	2CDS232001R0404		0.25	5
3	6	3	632423	SH203T-C6	2CDS233001R0064		0.375	1
	8	3	632447	SH203T-C8	2CDS233001R0084		0.375	1
	10	3	632454	SH203T-C10	2CDS233001R0104		0.375	1
	13	3	632478	SH203T-C13	2CDS233001R0134		0.375	1
	16	3	632492	SH203T-C16	2CDS233001R0164		0.375	1
	20	3	632515	SH203T-C20	2CDS233001R0204		0.375	1
	25	3	632539	SH203T-C25	2CDS233001R0254		0.375	1
	32	3	632553	SH203T-C32	2CDS233001R0324		0.375	1
	40	3	632577	SH203T-C40	2CDS233001R0404		0.375	1



SH203T-C...NA

SH204T-C

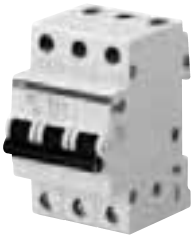
N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
3+N	6	4	632591	SH203T-C6NA	2CDS233103R0064		0.5	1
	8	4	632614	SH203T-C8NA	2CDS233103R0084		0.5	1
	10	4	632621	SH203T-C10NA	2CDS233103R0104		0.5	1
	13	4	632645	SH203T-C13NA	2CDS233103R0134		0.5	1
	16	4	632669	SH203T-C16NA	2CDS233103R0164		0.5	1
	20	4	632683	SH203T-C20NA	2CDS233103R0204		0.5	1
	25	4	632706	SH203T-C25NA	2CDS233103R0254		0.5	1
	32	4	632720	SH203T-C32NA	2CDS233103R0324		0.5	1
	40	4	632744	SH203T-C40NA	2CDS233103R0404		0.5	1
4	6	4	632768	SH204T-C6	2CDS234001R0064		0.5	1
	8	4	632782	SH204T-C8	2CDS234001R0084		0.5	1
	10	4	632799	SH204T-C10	2CDS234001R0104		0.5	1
	13	4	632812	SH204T-C13	2CDS234001R0134		0.5	1
	16	4	632836	SH204T-C16	2CDS234001R0164		0.5	1
	20	4	632850	SH204T-C20	2CDS234001R0204		0.5	1
	25	4	632874	SH204T-C25	2CDS234001R0254		0.5	1
	32	4	632898	SH204T-C32	2CDS234001R0324		0.5	1
	40	4	632911	SH204T-C40	2CDS234001R0404		0.5	1

Ordering Information
MCB SH 200 L Series - B characteristic

SH201L-B

SH201L-B...NA

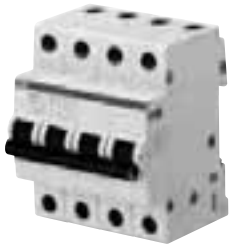
SH202L-B



SH203L-B

N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1	6	1	632942	SH201L-B6	2CDS241001R0065		0.125	10
	10	1	632973	SH201L-B10	2CDS241001R0105		0.125	10
	13	1	632997	SH201L-B13	2CDS241001R0135		0.125	10
	16	1	633017	SH201L-B16	2CDS241001R0165		0.125	10
	20	1	633031	SH201L-B20	2CDS241001R0205		0.125	10
	25	1	633055	SH201L-B25	2CDS241001R0255		0.125	10
	32	1	633079	SH201L-B32	2CDS241001R0325		0.125	10
	40	1	633093	SH201L-B40	2CDS241001R0405		0.125	10
1+N	6	2	633116	SH201L-B6NA	2CDS241103R0065		0.25	5
	10	2	633147	SH201L-B10NA	2CDS241103R0105		0.25	5
	13	2	633161	SH201L-B13NA	2CDS241103R0135		0.25	5
	16	2	633185	SH201L-B16NA	2CDS241103R0165		0.25	5
	20	2	633208	SH201L-B20NA	2CDS241103R0205		0.25	5
	25	2	633222	SH201L-B25NA	2CDS241103R0255		0.25	5
	32	2	633246	SH201L-B32NA	2CDS241103R0325		0.25	5
	40	2	633260	SH201L-B40NA	2CDS241103R0405		0.25	5
2	6	2	633284	SH202L-B6	2CDS242001R0065		0.25	5
	10	2	633314	SH202L-B10	2CDS242001R0105		0.25	5
	13	2	633338	SH202L-B13	2CDS242001R0135		0.25	5
	16	2	633352	SH202L-B16	2CDS242001R0165		0.25	5
	20	2	633376	SH202L-B20	2CDS242001R0205		0.25	5
	25	2	633390	SH202L-B25	2CDS242001R0255		0.25	5
	32	2	633413	SH202L-B32	2CDS242001R0325		0.25	5
	40	2	633437	SH202L-B40	2CDS242001R0405		0.25	5
3	6	3	633451	SH203L-B6	2CDS243001R0065		0.375	1
	10	3	633482	SH203L-B10	2CDS243001R0105		0.375	1
	13	3	633505	SH203L-B13	2CDS243001R0135		0.375	1
	16	3	633529	SH203L-B16	2CDS243001R0165		0.375	1
	20	3	633543	SH203L-B20	2CDS243001R0205		0.375	1
	25	3	633567	SH203L-B25	2CDS243001R0255		0.375	1
	32	3	633581	SH203L-B32	2CDS243001R0325		0.375	1
	40	3	633604	SH203L-B40	2CDS243001R0405		0.375	1

SH203L-B...NA



SH204L-B

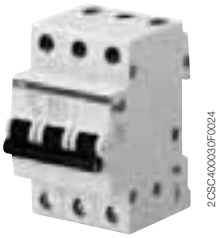
N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
3+N	6	4	633628	SH203L-B6NA	2CDS243103R0065		0.5	1
	10	4	633659	SH203L-B10NA	2CDS243103R0105		0.5	1
	13	4	633673	SH203L-B13NA	2CDS243103R0135		0.5	1
	16	4	633697	SH203L-B16NA	2CDS243103R0165		0.5	1
	20	4	633710	SH203L-B20NA	2CDS243103R0205		0.5	1
	25	4	633734	SH203L-B25NA	2CDS243103R0255		0.5	1
	32	4	633758	SH203L-B32NA	2CDS243103R0325		0.5	1
	40	4	633772	SH203L-B40NA	2CDS243103R0405		0.5	1
4	6	4	633796	SH204L-B6	2CDS244001R0065		0.5	1
	10	4	633826	SH204L-B10	2CDS244001R0105		0.5	1
	13	4	633840	SH204L-B13	2CDS244001R0135		0.5	1
	16	4	633864	SH204L-B16	2CDS244001R0165		0.5	1
	20	4	633888	SH204L-B20	2CDS244001R0205		0.5	1
	25	4	633901	SH204L-B25	2CDS244001R0255		0.5	1
	32	4	633925	SH204L-B32	2CDS244001R0325		0.5	1
	40	4	633949	SH204L-B40	2CDS244001R0405		0.5	1

Ordering Information
MCB SH 200 L Series - C characteristic

SH201L-C

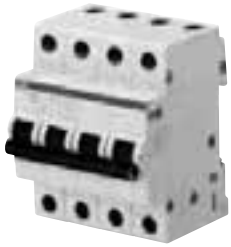
SH201L-C...NA

SH202L-C

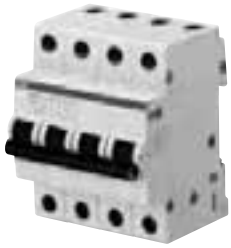


SH203L-C

N. of poles	Rated current In A	N° module [17,5 mm]	Bbn 4016779 EAN	Order details Type code	Order code	Price	Weight 1 piece Kg	Pack unit
1	6	1	632935	SH201L-C6	2CDS241001R0064		0.125	10
	8	1	632959	SH201L-C8	2CDS241001R0084		0.125	10
	10	1	632966	SH201L-C10	2CDS241001R0104		0.125	10
	13	1	632980	SH201L-C13	2CDS241001R0134		0.125	10
	16	1	633000	SH201L-C16	2CDS241001R0164		0.125	10
	20	1	633024	SH201L-C20	2CDS241001R0204		0.125	10
	25	1	633048	SH201L-C25	2CDS241001R0254		0.125	10
	32	1	633062	SH201L-C32	2CDS241001R0324		0.125	10
	40	1	633086	SH201L-C40	2CDS241001R0404		0.125	10
1+N	6	2	633109	SH201L-C6NA	2CDS241103R0064		0.25	5
	8	2	633123	SH201L-C8NA	2CDS241103R0084		0.25	5
	10	2	633130	SH201L-C10NA	2CDS241103R0104		0.25	5
	13	2	633154	SH201L-C13NA	2CDS241103R0134		0.25	5
	16	2	633178	SH201L-C16NA	2CDS241103R0164		0.25	5
	20	2	633192	SH201L-C20NA	2CDS241103R0204		0.25	5
	25	2	633215	SH201L-C25NA	2CDS241103R0254		0.25	5
	32	2	633239	SH201L-C32NA	2CDS241103R0324		0.25	5
	40	2	633253	SH201L-C40NA	2CDS241103R0404		0.25	5
2	6	2	633277	SH202L-C6	2CDS242001R0064		0.25	5
	8	2	633291	SH202L-C8	2CDS242001R0084		0.25	5
	10	2	633307	SH202L-C10	2CDS242001R0104		0.25	5
	13	2	633321	SH202L-C13	2CDS242001R0134		0.25	5
	16	2	633345	SH202L-C16	2CDS242001R0164		0.25	5
	20	2	633369	SH202L-C20	2CDS242001R0204		0.25	5
	25	2	633383	SH202L-C25	2CDS242001R0254		0.25	5
	32	2	633406	SH202L-C32	2CDS242001R0324		0.25	5
	40	2	633420	SH202L-C40	2CDS242001R0404		0.25	5
3	6	3	633444	SH203L-C6	2CDS243001R0064		0.375	1
	8	3	633468	SH203L-C8	2CDS243001R0084		0.375	1
	10	3	633475	SH203L-C10	2CDS243001R0104		0.375	1
	13	3	633499	SH203L-C13	2CDS243001R0134		0.375	1
	16	3	633512	SH203L-C16	2CDS243001R0164		0.375	1
	20	3	633536	SH203L-C20	2CDS243001R0204		0.375	1
	25	3	633550	SH203L-C25	2CDS243001R0254		0.375	1
	32	3	633574	SH203L-C32	2CDS243001R0324		0.375	1
	40	3	633598	SH203L-C40	2CDS243001R0404		0.375	1



SH203L-C...NA



SH204L-C

N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
3+N	6	4	633611	SH203L-C6NA	2CDS243103R0064		0.5	1
	8	4	633635	SH203L-C8NA	2CDS243103R0084		0.5	1
	10	4	633642	SH203L-C10NA	2CDS243103R0104		0.5	1
	13	4	633666	SH203L-C13NA	2CDS243103R0134		0.5	1
	16	4	633680	SH203L-C16NA	2CDS243103R0164		0.5	1
	20	4	633703	SH203L-C20NA	2CDS243103R0204		0.5	1
	25	4	633727	SH203L-C25NA	2CDS243103R0254		0.5	1
	32	4	633741	SH203L-C32NA	2CDS243103R0324		0.5	1
	40	4	633765	SH203L-C40NA	2CDS243103R0404		0.5	1
4	6	4	633789	SH204L-C6	2CDS244001R0064		0.5	1
	8	4	633802	SH204L-C8	2CDS244001R0084		0.5	1
	10	4	633819	SH204L-C10	2CDS244001R0104		0.5	1
	13	4	633833	SH204L-C13	2CDS244001R0134		0.5	1
	16	4	633857	SH204L-C16	2CDS244001R0164		0.5	1
	20	4	633871	SH204L-C20	2CDS244001R0204		0.5	1
	25	4	633895	SH204L-C25	2CDS244001R0254		0.5	1
	32	4	633918	SH204L-C32	2CDS244001R0324		0.5	1
	40	4	633932	SH204L-C40	2CDS244001R0404		0.5	1

Ordering Information
MCB SH 200 Series - B characteristic

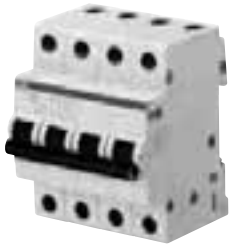
SH201-B

SH201-B...NA

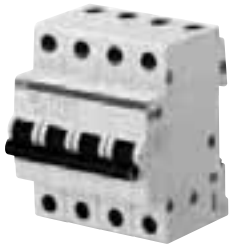
SH202-B

SH203-B

N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1	6	1	630580	SH201-B6	2CDS211001R0065		0.125	10
	10	1	630610	SH201-B10	2CDS211001R0105		0.125	10
	13	1	630634	SH201-B13	2CDS211001R0135		0.125	10
	16	1	630658	SH201-B16	2CDS211001R0165		0.125	10
	20	1	630672	SH201-B20	2CDS211001R0205		0.125	10
	25	1	630696	SH201-B25	2CDS211001R0255		0.125	10
	32	1	630719	SH201-B32	2CDS211001R0325		0.125	10
	40	1	630733	SH201-B40	2CDS211001R0405		0.125	10
1+N	6	2	630818	SH201-B6NA	2CDS211103R0065		0.25	5
	10	2	630849	SH201-B10NA	2CDS211103R0105		0.25	5
	13	2	630863	SH201-B13NA	2CDS211103R0135		0.25	5
	16	2	630887	SH201-B16NA	2CDS211103R0165		0.25	5
	20	2	630900	SH201-B20NA	2CDS211103R0205		0.25	5
	25	2	630924	SH201-B25NA	2CDS211103R0255		0.25	5
	32	2	630948	SH201-B32NA	2CDS211103R0325		0.25	5
	40	2	630962	SH201-B40NA	2CDS211103R0405		0.25	5
2	6	2	631044	SH202-B6	2CDS212001R0065		0.25	5
	10	2	631075	SH202-B10	2CDS212001R0105		0.25	5
	13	2	631099	SH202-B13	2CDS212001R0135		0.25	5
	16	2	631112	SH202-B16	2CDS212001R0165		0.25	5
	20	2	631136	SH202-B20	2CDS212001R0205		0.25	5
	25	2	631150	SH202-B25	2CDS212001R0255		0.25	5
	32	2	631174	SH202-B32	2CDS212001R0325		0.25	5
	40	2	631198	SH202-B40	2CDS212001R0405		0.25	5
3	6	3	631273	SH203-B6	2CDS213001R0065		0.375	1
	10	3	631303	SH203-B10	2CDS213001R0105		0.375	1
	13	3	631327	SH203-B13	2CDS213001R0135		0.375	1
	16	3	631341	SH203-B16	2CDS213001R0165		0.375	1
	20	3	631365	SH203-B20	2CDS213001R0205		0.375	1
	25	3	631389	SH203-B25	2CDS213001R0255		0.375	1
	32	3	631402	SH203-B32	2CDS213001R0325		0.375	1
	40	3	631426	SH203-B40	2CDS213001R0405		0.375	1



SH203-B...NA

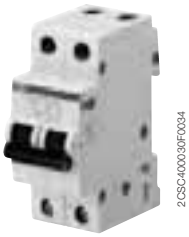


SH204-B

N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
3+N	6	4	631501	SH203-B6NA	2CDS213103R0065		0.5	1
	10	4	631532	SH203-B10NA	2CDS213103R0105		0.5	1
	13	4	631556	SH203-B13NA	2CDS213103R0135		0.5	1
	16	4	631570	SH203-B16NA	2CDS213103R0165		0.5	1
	20	4	631594	SH203-B20NA	2CDS213103R0205		0.5	1
	25	4	631617	SH203-B25NA	2CDS213103R0255		0.5	1
	32	4	631631	SH203-B32NA	2CDS213103R0325		0.5	1
	40	4	631655	SH203-B40NA	2CDS213103R0405		0.5	1
4	6	4	631730	SH204-B6	2CDS214001R0065		0.5	1
	10	4	631761	SH204-B10	2CDS214001R0105		0.5	1
	13	4	631785	SH204-B13	2CDS214001R0135		0.5	1
	16	4	631808	SH204-B16	2CDS214001R0165		0.5	1
	20	4	631822	SH204-B20	2CDS214001R0205		0.5	1
	25	4	631846	SH204-B25	2CDS214001R0255		0.5	1
	32	4	631860	SH204-B32	2CDS214001R0325		0.5	1
	40	4	631884	SH204-B40	2CDS214001R0405		0.5	1

Ordering Information
MCB SH 200 Series - C characteristic

SH201-C



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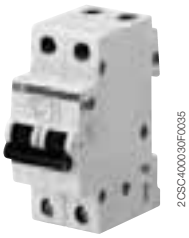
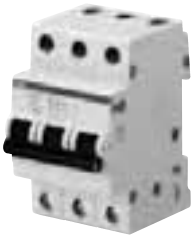


SH202-C



SH203-C

N. of poles	Rated current In A	N° module [17,5 mm]	Bbn 4016779 EAN	Order details Type code	Order code	Price	Weight 1 piece Kg	Pack unit
1	6	1	630573	SH201-C6	2CDS211001R0064		0.125	10
	8	1	630597	SH201-C8	2CDS211001R0084		0.125	10
	10	1	630603	SH201-C10	2CDS211001R0104		0.125	10
	13	1	630627	SH201-C13	2CDS211001R0134		0.125	10
	16	1	630641	SH201-C16	2CDS211001R0164		0.125	10
	20	1	630665	SH201-C20	2CDS211001R0204		0.125	10
	25	1	630689	SH201-C25	2CDS211001R0254		0.125	10
	32	1	630702	SH201-C32	2CDS211001R0324		0.125	10
	40	1	630726	SH201-C40	2CDS211001R0404		0.125	10
1+N	6	2	630801	SH201-C6NA	2CDS211103R0064		0.25	5
	8	2	630825	SH201-C8NA	2CDS211103R0084		0.25	5
	10	2	630832	SH201-C10NA	2CDS211103R0104		0.25	5
	13	2	630856	SH201-C13NA	2CDS211103R0134		0.25	5
	16	2	630870	SH201-C16NA	2CDS211103R0164		0.25	5
	20	2	630894	SH201-C20NA	2CDS211103R0204		0.25	5
	25	2	630917	SH201-C25NA	2CDS211103R0254		0.25	5
	32	2	630931	SH201-C32NA	2CDS211103R0324		0.25	5
	40	2	630955	SH201-C40NA	2CDS211103R0404		0.25	5
2	6	2	631037	SH202-C6	2CDS212001R0064		0.25	5
	8	2	631051	SH202-C8	2CDS212001R0084		0.25	5
	10	2	631068	SH202-C10	2CDS212001R0104		0.25	5
	13	2	631082	SH202-C13	2CDS212001R0134		0.25	5
	16	2	631105	SH202-C16	2CDS212001R0164		0.25	5
	20	2	631129	SH202-C20	2CDS212001R0204		0.25	5
	25	2	631143	SH202-C25	2CDS212001R0254		0.25	5
	32	2	631167	SH202-C32	2CDS212001R0324		0.25	5
	40	2	631181	SH202-C40	2CDS212001R0404		0.25	5
3	6	3	631266	SH203-C6	2CDS213001R0064		0.375	1
	8	3	631280	SH203-C8	2CDS213001R0084		0.375	1
	10	3	631297	SH203-C10	2CDS213001R0104		0.375	1
	13	3	631310	SH203-C13	2CDS213001R0134		0.375	1
	16	3	631334	SH203-C16	2CDS213001R0164		0.375	1
	20	3	631358	SH203-C20	2CDS213001R0204		0.375	1
	25	3	631372	SH203-C25	2CDS213001R0254		0.375	1
	32	3	631396	SH203-C32	2CDS213001R0324		0.375	1
	40	3	631419	SH203-C40	2CDS213001R0404		0.375	1

SH203-C…NA

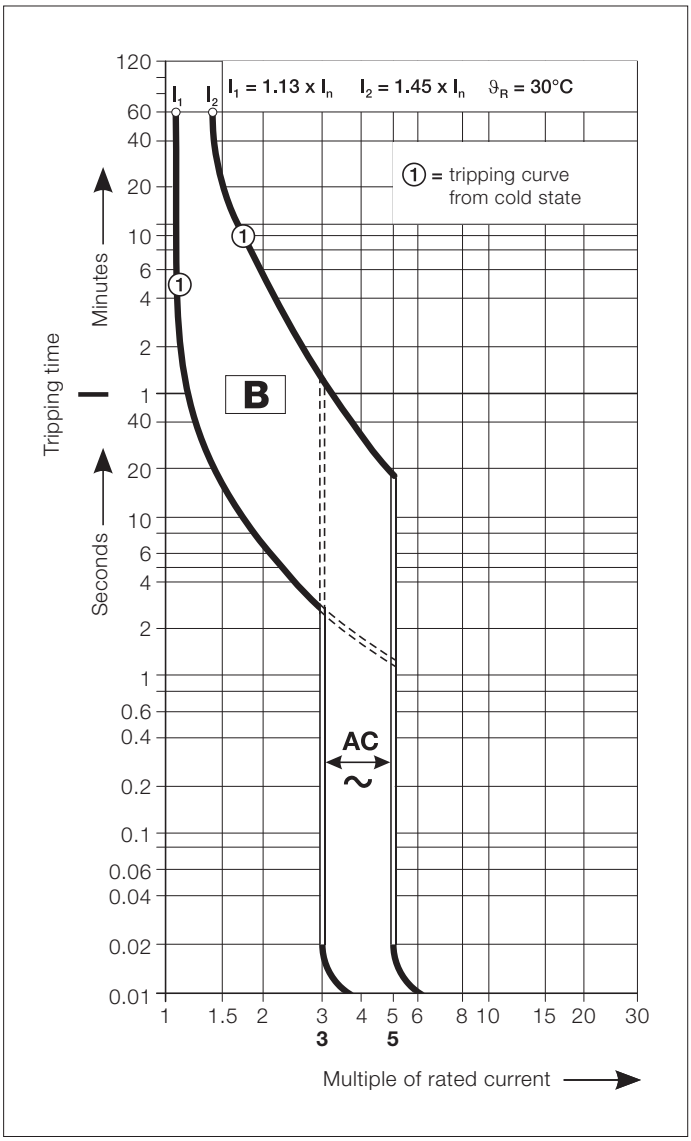
SH204-C

N. of poles	Rated current	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
3+N	6	4	631495	SH203-C6NA	2CDS213103R0064		0.5	1
	8	4	631518	SH203-C8NA	2CDS213103R0084		0.5	1
	10	4	631525	SH203-C10NA	2CDS213103R0104		0.5	1
	13	4	631549	SH203-C13NA	2CDS213103R0134		0.5	1
	16	4	631563	SH203-C16NA	2CDS213103R0164		0.5	1
	20	4	631587	SH203-C20NA	2CDS213103R0204		0.5	1
	25	4	631600	SH203-C25NA	2CDS213103R0254		0.5	1
	32	4	631624	SH203-C32NA	2CDS213103R0324		0.5	1
	40	4	631648	SH203-C40NA	2CDS213103R0404		0.5	1
4	6	4	631723	SH204-C6	2CDS214001R0064		0.5	1
	8	4	631747	SH204-C8	2CDS214001R0084		0.5	1
	10	4	631754	SH204-C10	2CDS214001R0104		0.5	1
	13	4	631778	SH204-C13	2CDS214001R0134		0.5	1
	16	4	631792	SH204-C16	2CDS214001R0164		0.5	1
	20	4	631815	SH204-C20	2CDS214001R0204		0.5	1
	25	4	631839	SH204-C25	2CDS214001R0254		0.5	1
	32	4	631853	SH204-C32	2CDS214001R0324		0.5	1
	40	4	631877	SH204-C40	2CDS214001R0404		0.5	1

Technical details

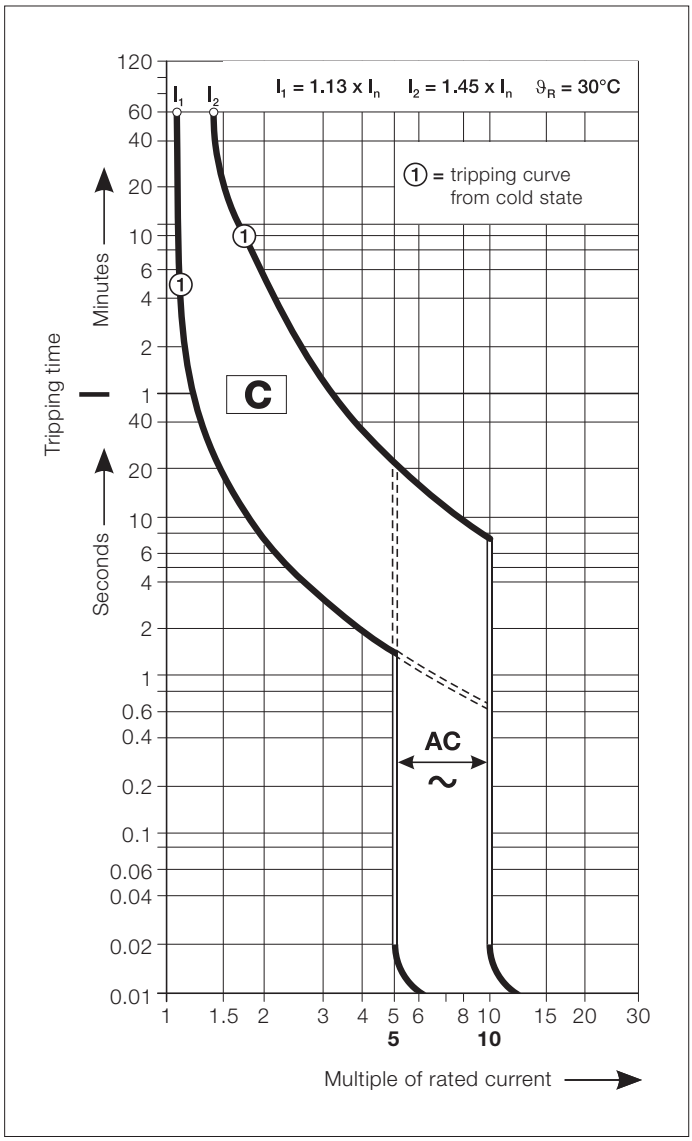
Tripping diagrams

B characteristic



acc. to IEC/EN 60898-1
I_n = 6 ... 40 A
SH 200T / SH 200 L / SH 200

C characteristic



acc. to IEC/EN 60898-1
I_n = 6 ... 40 A
SH 200T / SH 200 L / SH 200

Internal resistances and power losses of the Miniature Circuit-Breakers

Rated current	Range SH 200 T B, C		Range SH 200 L B, C		Range SH 200 B, C	
A	m Ω	W	m Ω	W	m Ω	W
6	55	2.0	55	2.0	55	2.0
8	15	1.0	15	1.0	15	1.0
10	13.3	1.3	13.3	1.3	13.3	1.3
13	13.3	2.3	13.3	2.3	13.3	2.3
16	7.0	1.8	7.0	1.8	7.0	1.8
20	6.25	2.5	6.25	2.5	6.25	2.5
25	5.0	3.2	5.0	3.2	5.0	3.2
32	3.6	3.7	3.6	3.7	3.6	3.7
40	3.0	4.8	3.0	4.8	3.0	4.8

Internal resistances per pole in m Ω
Power losses per pole in W

Internal resistances are subject to application-specific and environment-specific conditions and are therefore to be considered as typical values.

Tripping characteristics

acc. to	Tripping character-isitic	Thermal tripping [1]			Electromagnetic tripping [2]		
		Test currents:		Tripping-time	Test currents:		Tripping-time
		conventional non-tripping current I_1	conventional tripping current I_2		conventional non-tripping current	conventional tripping current	
IEC/EN 60898-1	B	$1.13 \cdot I_n$	$1.45 \cdot I_n$	> 1 h < 1 h [3]	$3 \cdot I_n$	$5 \cdot I_n$	0.1 s … 45 s ≤ 32 A / 0.1 s … 90 s ≥ 32 A < 0,1 s
	C	$1.13 \cdot I_n$	$1.45 \cdot I_n$	> 1 h < 1 h [3]	$5 \cdot I_n$	$10 \cdot I_n$	0.1 s … 15 s ≤ 32 A / 0.1 s … 30 s ≥ 32 A < 0,1 s

[1] Influence of ambient temperature see below.
[2] Electromagnetic tripping valid for AC 50...60 Hz.
[3] From warm operating condition (immediately after I_1>1h).

Influence of ambient temperature

The thermal releases are calibrated to a nominal reference temperature of 30°C for B and C characteristic.

In the case of ambient temperatures deviating from these values the trip values:
- are reduced in case of higher temperatures;
- are increased in case of lower temperatures.

The electromagnetic tripping is independent of the ambient temperature.

Technical details

Current-carrying capacity of the MCBs as a function of the ambient temperature

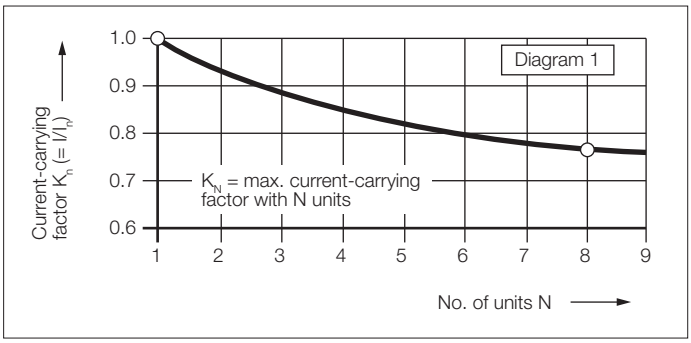
Max. operating current depending on the ambient temperature of a circuit-breaker in load circuit of characteristics type B and C.

2

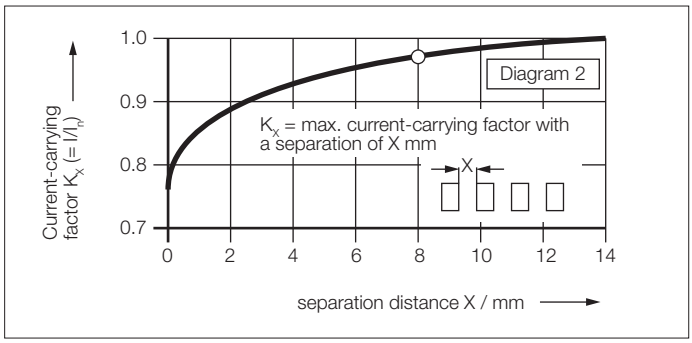
B, C	Ambient temperature T (°C)									
In (A)	-30	-20	-10	0	10	20	30	40	50	60
6.0	7.7	7.5	7.2	6.9	6.6	6.3	6.0	5.7	5.3	4.9
8.0	10.3	10.0	9.6	9.2	8.8	8.4	8.0	7.5	7.1	6.5
10.0	12.9	12.5	12.0	11.5	11.1	10.5	10.0	9.4	8.8	8.2
13.0	16.8	16.2	15.6	15.0	14.4	13.7	13.0	12.3	11.5	10.6
16.0	20.7	20.0	19.2	18.5	17.7	16.9	16.0	15.1	14.1	13.1
20.0	25.8	24.9	24.0	23.1	22.1	21.1	20.0	18.9	17.6	16.3
25.0	32.3	31.2	30.0	28.9	27.6	26.4	25.0	23.6	22.0	20.4
32.0	41.3	39.9	38.5	37.0	35.4	33.7	32.0	30.2	28.2	26.1
40.0	51.6	49.9	48.1	46.2	44.2	42.2	40.0	37.7	35.3	32.7

Mutual thermal influence in the case of simultaneous load

MCBs mounted in a row side by side



MCBs mounted with a seperating distance X



Characteristic	from diagram	Calculation	Example
Rated current and characteristics of MCB Continuous load Number of MCB´s / Mounting distance		I_n / B, C ϑ_R N / X	16 A – B 40 °C 8 pieces / 0 and 8 mm
Continuous load > 1 h		$I = I_n \cdot K_\vartheta$	In=16A incl. derating due to temp. 40°C: In=15.1A
Continuous load, N MCB, Distance 0 Continuous load, N MCB, Distance X	1 2	$I = K_\vartheta \cdot K_N$ $I = K_\vartheta \cdot K_X$	16 · 0.77 = 12.23 A 15.1A*0.77=11.6A 15.1A*0.98=14.8A

Max. Back-up protection

SH 200 T / SH 200 L / SH 200	B/C Rated current	Max. Back-up protection fuse	Main Circuit Breaker S 700
	6/8	63 A	100 A
	10… 32	100 A	100 A
	40	125 A	100 A

Maximum permissible earth-fault loop impedance Z_s

Impedance Z_s at U_0 = 230 V AC[1] to ensure compliance with the operation conditions in accordance to IEC 60 364-4-41.
Operating time < 0.4 s; at 400 V AC < 0.2 s and at > 400 V AC < 0.1 s
The instantaneous tripping of the MCB ensures an operating time of ≤ 0.1 s (TN system).

Determined according to DIN VDE 0100-520, supplement 2, 2002-11 (source impedance = 300 Ω, c = 0.95 and conductor temperature 70 °C = factor 0.8). The internal resistance of the MCB is already included.

SH 200, SH 200 L, SH 200 T

Rated current I_n A	B max. Z_s Ω	C max. Z_s Ω
6	7.7	3.8
8	–	2.8
10	4.6	2.2
13	3.5	1.7
16	2.9	1.4
20	2.3	1.2
25	1.8	0.9
32	1.4	0.7
40	1.1	0.6

1) U_0 = rated voltage against earthed conductor; for U_0 = 240 V~ is $Z_s \cdot 1.04$; for U_0 = 127 V~ is $Z_s \cdot 0.55$

Take into account the voltage drop:
e.g. in the case of a 1.5 mm² conductor, protected by a B 16 circuit breaker, the maximum cable length is 82 m.
If the voltage is below 3%, this would result in a maximum cable length (2 wire) of 17 m.
For more details on this topic, get your own copy of the technical information leaflet “Maximum cable lengths”.

Maximum cable length in case of different voltages and cross sections on request.

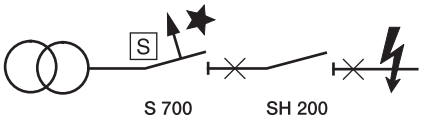
Technical details

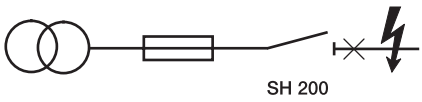
Short circuit selectivity

In the case of a short circuit, selectivity exists up to the values indicated.

2

MCBs — **short circuit discrimination in kA**



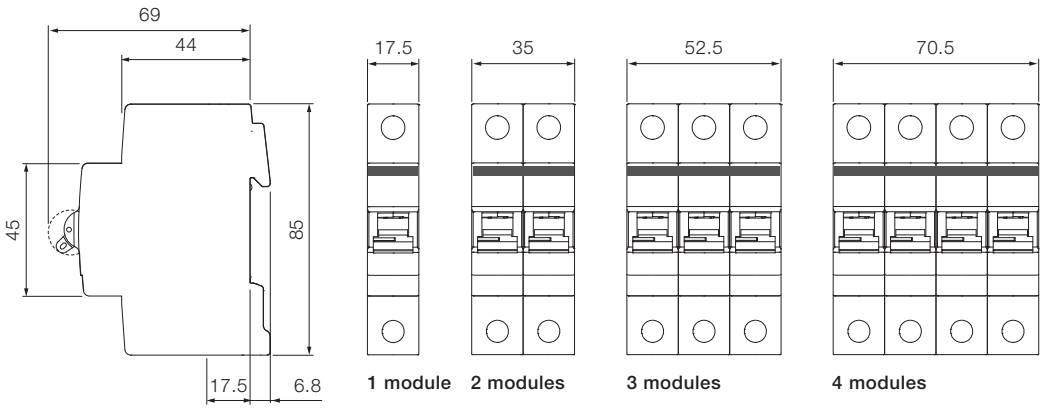


		to main circuit breaker S 700									to fuse gL/gG (IEC 60 269-1)									
series	**I_n(A)**	**16**	**20**	**25**	**35**	**40**	**50**	**63**	**80**	**100**	**16**	**20**	**25**	**35**	**50**	**63**	**80**	**100**	**125**	**160**
SH 200 T – B, C	6	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	0.2	0.4	0.6	1.5	2.5	2.8	3	3	3	3
	8	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		0.3	0.6	1.4	2.4	2.6	3	3	3	3
	10	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5			0.5	1.2	2.1	2.5	2.8	3	3	3
	13	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5			0.4	1.0	1.8	2.4	2.8	3	3	3
	16	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				0.8	1.6	2.3	2.8	3	3	3
	20		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					1.5	2.1	2.5	2.5	3	3
	25			4.5	4.5	4.5	4.5	4.5	4.5	4.5					1.0	2.0	2.5	2.5	3	3
	32		**		4.5	4.5	4.5	4.5	4.5	4.5	no selectivity					1.9	2.5	2.5	3	3
	40					4.5	4.5	4.5	4.5	4.5						1.5	2	2	2	2
SH 200 L – B, C	6	6	6	6	6	6	6	6	6	6	0.2	0.4	0.7	1.8	3	5	4.5	4.5	4.5	4.5
	8	6	6	6	6	6	6	6	6	6	0.2	0.3	0.6	0.6	2.5	4	4.5	4.5	4.5	4.5
	10	6	6	6	6	6	6	6	6	6		0.3	0.6	1.4	2.3	3	4	4.5	4.5	4.5
	13	6	6	6	6	6	6	6	6	6			0.5	1.3	2	3	4	4.5	4.5	4.5
	16	6	6	6	6	6	6	6	6	6				1	1.8	2.5	3.5	4.5	4.5	4.5
	20		6	6	6	6	6	6	6	6					1.6	2.2	3	4	4.5	4.5
	25			6	6	6	6	6	6	6					1.5	2.2	3	4	4.5	4.5
	32		**		6	6	6	6	6	6	no selectivity					2	2.8	3.5	4.5	4.5
	40					6	6	6	6	6						2	2.5	3	4.5	4.5
SH 200 – B, C	6	10	10	10	10	10	10	10	8	8	0.2	0.5	0.8	2	3.3	5.5	6	6	6	6
	8	10	10	10	10	10	10	10	8	8	0.2	0.4	0.7	1.7	2.8	4.5	6	6	6	6
	10	10	10	10	10	10	10	10	8	8	0.2	0.4	0.7	1.5	2.5	3.5	5	6	6	6
	16	10	10	10	10	10	10	10	8	8			0.7	1.5	2.5	3.5	5	6	6	6
	20		10	10	10	10	10	10	8	8				1.3	2	2.9	4.1	6	6	6
	25			10	10	10	15	10	8	8					1.8	2.6	3.5	5	6	6
	32		**		10	10	10	10	8	8	no selectivity				1.8	2.6	3.5	5	6	6
	40					10	10	10	8	8						2.2	3	4	6	6

** Limited or no selectivity at all possible in the overload range (thermal tripping)

Overall dimensions

SH 200, SH 200 L, SH 200 T

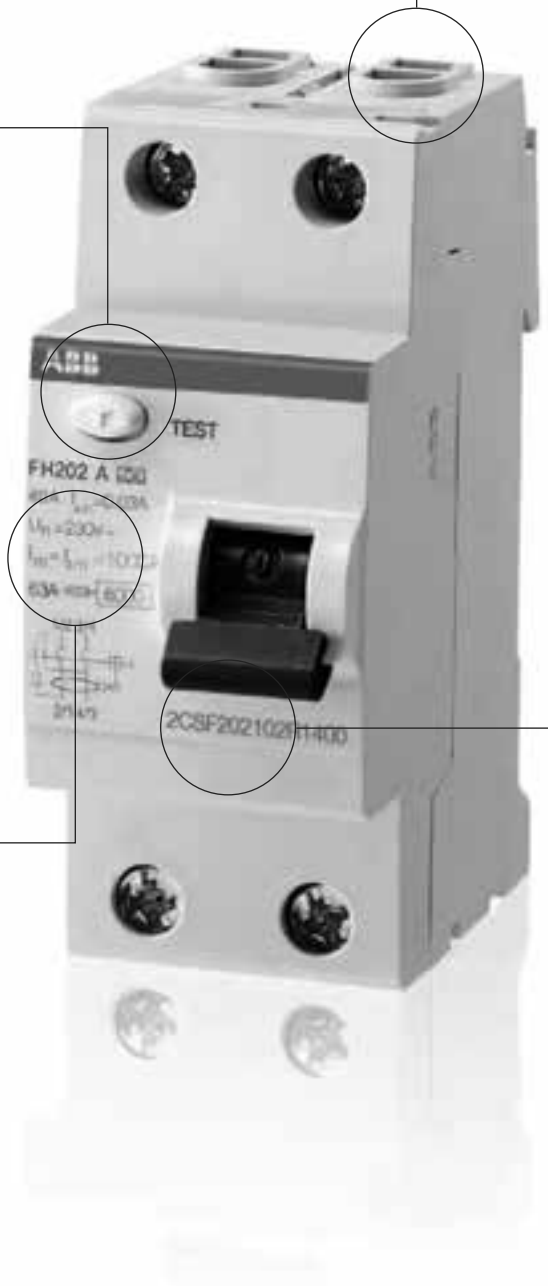


Residual current devices

RCCB FH200. The details make the difference
A range designed to ensure efficiency and protection

Bi-directional cylindrical terminals ensure higher safety of wiring operation, making them easier.

Test pushbutton to verify the correct functioning of the device.



Laser-marked order code on the front to make easier future orders.

Information on the device are laser printed to make them clearly visible and long lasting.

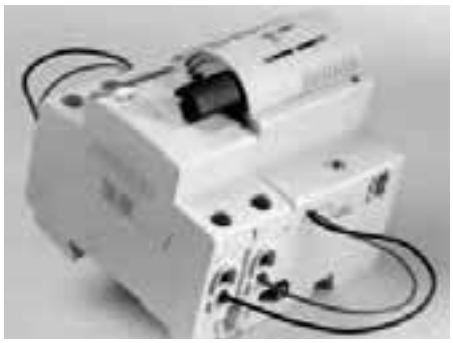
Two terminals are available, the fore one for cables up to 25 mm^2, the back one for cables up to 10 mm^2 or for busbars.

FH200: a wide range of RCCBs with 2P and 4P configuration, rated currents from 25 to 63 A, available in AC and A type with rated sensitivity from 30 mA up to 300 mA.

The availability of two terminals offers different connection solutions thanks to the possibility to connect two indipendent cables in the same device: the second terminal can be used for an auxiliary circuit or for the supply of devices with small section cables without connecting them together with the main circuit.

All the safety ensured by the international marks: approvals' marking in a visible area, even if RCDs is installed and with the panel-door closed.

High performances:
- rated breaking capacity and rated residual breaking capacity laser printed on the device: Im=IΔm= 1000 A
- coordination with a 63 A rated current SCPD (short-circuit protective device) = 6000 A.



The FH202 can be coupled with the autoreclosing unit F2C-ARH in order to ensure continuity of service for the whole installation of your home avoiding lack of supply.

Technical features table for residual current circuit breakers (RCCBs)
FH200 Series

Standards			
Electrical features			
Type (wave form of the earth leakage sensed)			
Poles			
Rated current I_n		A	
Rated sensitivity $I_{\Delta n}$		mA	
Rated voltage U_e		V	
Insulation voltage U_i		V	
Max. operating voltage of circuit test		V	
Min. operating voltage of circuit test		V	
Rated frequency		Hz	
Rated conditional short-circuit current $I_{nc}=I_{\Delta c}$		kA	
Rated residual breaking capacity $I_{\Delta m}=I_m$		kA	
Rated impulse withstand voltage (1.2/50) U_{imp}		kV	
Dielectric test voltage at ind. freq. for 1 min.		kV	
Surge current resistance (wave 8/20)		A	
Mechanical features			
Toggle			
Contact position indicator (CPI)			
Electrical life			
Mechanical life			
Protection degree	housing		
	terminals		
Tropicalization acc. to IEC/EN 60068-2	humid heat	°C/RH	
	constant climatic conditions	°C/RH	
	variable climatic conditions	°C/RH	
Ambient temperature (with daily average ≤ +35 °C)		°C	
Storage temperature		°C	
Installation			
Terminal type			
Terminal size top/bottom for cable		mm^2	
Terminal size top/bottom for busbar		mm^2	
Tightening torque		N*m	
Tool			
Mounting			
Connection			
Dimensions and weight			
Dimensions (H x D x W)	2P	mm	
	4P	mm	
Weight	2P	g	
	4P	g	
Combination with auxiliary elements			
Combinable with:	F2C-ARH autoreclosing unit		

	FH200		**F200**
	IEC/EN 61008		
	AC	A	A S
	2P, 4P		2P, 4P
	25, 40, 63		40, 63
	30, 100, 300	30	300
	230/400 - 240/415		230/400 - 240/415
	500		500
	254		254
	110		110
	50..60		50..60
	6 (with a SCPD-fuse gG 63A)		10 (with a SCPD-fuse gG 100A)
	1		1
	4		4
	2.5		2.5
	250		5000
	BLACK sealable in ON-OFF position		BLUE sealable in ON-OFF position
	not available		yes
	10.000		10.000
	20.000		20.000
	IP4X		IP4X
	IP2X		IP2X
	28 cycles with 55/95…100		28 cycles with 55/95…100
	23/83 - 40/93 - 55/20		23/83 - 40/93 - 55/20
	25/95 - 40/95		25/95 - 40/95
	-5..+40		-25..+55
	-40…+70		-40…+70
	failsafe bi-directional cylinder-lift terminal at top and bottom (shock protected)		failsafe bi-directional cylinder-lift terminal at top and bottom (shock protected)
	25/25		25/25
	10/10		10/10
	2.8		2.8
	Nr. 2 Pozidriv		Nr. 2 Pozidriv
	on DIN rail EN 60715 (35 mm) by means of fast clip device		on DIN rail EN 60715 (35 mm) by means of fast clip device
	from top and bottom		from top and bottom
	85 x 69 x 35		85 x 69 x 35
	85 x 69 x 70		85 x 69 x 70
	200		200
	350		350
	yes (the 2 poles version 30mA and 100mA)		no

Ordering Information
FH200 - AC type

FH202 AC

FH204 AC

Function: protection against the effects of sinusoidal alternating earth fault currents; protection against indirect contacts and additional protection against direct (with $I_{\Delta n}$=30 mA) contacts.
Standard: IEC/ EN 61008
Marking: according to EN 61008

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
2	30	25	2	891802	FH202 AC-25/0.03	2CSF202002R1250		0.225	1/6
		40	2	891901	FH202 AC-40/0.03	2CSF202002R1400		0.225	1/6
		63	2	892007	FH202 AC-63/0.03	2CSF202002R1630		0.225	1/6
	300	25	2	893004	FH202 AC-25/0.3	2CSF202003R3250		0.225	1/6
		40	2	893103	FH202 AC-40/0.3	2CSF202003R3400		0.225	1/6
		63	2	893202	FH202 AC-63/0.3	2CSF202003R3630		0.225	1/6
4	30	25	4	892106	FH204 AC-25/0.03	2CSF204002R1250		0.375	1/3
		40	4	892205	FH204 AC-40/0.03	2CSF204002R1400		0.375	1/3
		63	4	892304	FH204 AC-63/0.03	2CSF204002R1630		0.375	1/3
	300	25	4	893301	FH204 AC-25/0.3	2CSF204003R3250		0.375	1/3
		40	4	893400	FH204 AC-40/0.3	2CSF204003R3400		0.375	1/3
		63	4	893509	FH204 AC-63/0.3	2CSF204003R3630		0.375	1/3

Ordering Information
FH200 - AC type (for overseas markets)

FH202 AC

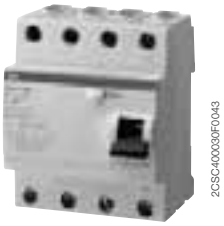
FH204 AC

Function: protection against the effects of sinusoidal alternating earth fault currents; protection against indirect contacts and additional protection against direct (with $I_{\Delta n}$=30 mA) contacts.
Standard: IEC/ EN 61008
Marking: according to IEC 61008

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
2	30	25	2	894209	FH202 AC-25/0.03	2CSF202006R1250		0.225	1/6
		40	2	894308	FH202 AC-40/0.03	2CSF202006R1400		0.225	1/6
		63	2	894407	FH202 AC-63/0.03	2CSF202006R1630		0.225	1/6
	100	25	2	894506	FH202 AC-25/0.1	2CSF202006R2250		0.225	1/6
		40	2	894605	FH202 AC-40/0.1	2CSF202006R2400		0.225	1/6
		63	2	894704	FH202 AC-63/0.1	2CSF202006R2630		0.225	1/6
	300	25	2	894803	FH202 AC-25/0.3	2CSF202006R3250		0.225	1/6
		40	2	894902	FH202 AC-40/0.3	2CSF202006R3400		0.225	1/6
		63	2	895008	FH202 AC-63/0.3	2CSF202006R3630		0.225	1/6
4	30	25	4	895107	FH204 AC-25/0.03	2CSF204006R1250		0.375	1/3
		40	4	895206	FH204 AC-40/0.03	2CSF204006R1400		0.375	1/3
		63	4	895305	FH204 AC-63/0.03	2CSF204006R1630		0.375	1/3
	100	25	4	895404	FH204 AC-25/0.1	2CSF204006R2250		0.375	1/3
		40	4	895503	FH204 AC-40/0.1	2CSF204006R2400		0.375	1/3
		63	4	895602	FH204 AC-63/0.1	2CSF204006R2630		0.375	1/3
	300	25	4	895701	FH204 AC-25/0.3	2CSF204006R3250		0.375	1/3
		40	4	895800	FH204 AC-40/0.3	2CSF204006R3400		0.375	1/3
		63	4	895909	FH204 AC-63/0.3	2CSF204006R3630		0.375	1/3

Ordering Information
FH200 A type - F200 A S type

FH202 A



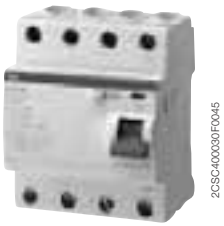
FH204 A

FH200 A type

Function: protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contacts and additional protection against direct (with IΔn=30 mA) contacts.
Standard: IEC/ EN 61008
Marking: according to EN 61008

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
2	30	25	2	892403	FH202 A-25/0.03	2CSF202102R1250		0.225	1/6
		40	2	892502	FH202 A-40/0.03	2CSF202102R1400		0.225	1/6
		63	2	892601	FH202 A-63/0.03	2CSF202102R1630		0.225	1/6
4	30	25	4	892700	FH204 A-25/0.03	2CSF204102R1250		0.375	1/3
		40	4	892809	FH204 A-40/0.03	2CSF204102R1400		0.375	1/3
		63	4	892908	FH204 A-63/0.03	2CSF204102R1630		0.375	1/3

F202 A S



F204 A S

F200 A S type

Function: protection against the effects of sinusoidal alternating and direct pulsating earth fault currents with an intentional tripping delay, which permits to realize the selectivity with downstream instantaneous devices; protection against indirect contacts.
Standard: IEC/EN 61008
Marking: according to EN 61008

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
2	300	40	2	784302	F202 A S-40/0.3	2CSF202201R3400		0.225	1/6
		63	2	784401	F202 A S-63/0.3	2CSF202201R3630		0.225	1/6
4	300	40	4	784708	F204 A S-40/0.3	2CSF204201R3400		0.375	1/3
		63	4	784807	F204 A S-63/0.3	2CSF204201R3630		0.375	1/3

Technical details

Coordination tables

FH202

	Single-phases 230-240 V circuit		
	25 A	**40 A**	**63 A**
SH201 T - SH201 T NA - SH202 T	3	3	3
SH201 L - SH201 L NA - SH202 L	4.5	4.5	4.5
SH201 - SH201 NA - SH202	6	6	6

FH204

	Three-phases circuits with neutral (y/Δ) 230-240 V/400-415 V		
	25 A	**40 A**	**63 A**
SH201 T* - SH201 T NA* - SH202 T*	3	3	3
SH201 L* - SH201 L NA* - SH202 L*	4.5	4.5	4.5
SH201* - SH201 NA* - SH202*	6	6	6

* The switches are considered between phase and neutral (230/240V)

FH204

	Three-phases circuits with neutral (y/Δ) 230-240 V/400-415 V		
	25 A	**40 A**	**63 A**
SH203 T - SH203 T NA - SH204 T	3	3	3
SH203 L - SH203 L NA - SH204 L	4.5	4.5	4.5
SH203 - SH203 NA - SH204	6	6	6

Power loss

Rated current In [A]	**Power loss W [W]**	
	2P	**4P**
25	1.0	1.3
40	2.4	3.2
63	3.2	4.4

RCBO DS201 and DS202C. The details make the difference
A range designed to ensure efficiency and protection

Bi-directional cylindrical terminals ensure higher safety of wiring operations, making them easier.

Information on the device are laser printed to ensure readability over time.

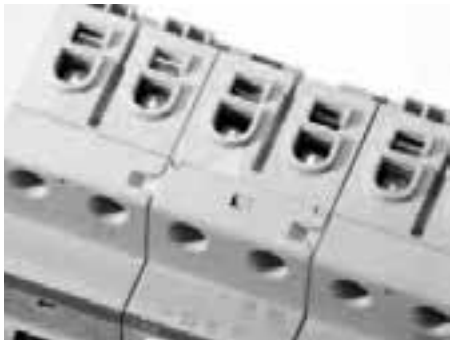
Each RCBO of the DS201-DS202C range is equipped with an RFid tag containing a unique serial number assigned to ABB according to the standard ISO/IEC FCD 15693-3 in order to authenticate the product.

Label carrier to identify the line the RCBO is protecting.

Test pushbutton to verify the correct functioning of the device

Any earth fault can be immediately identified through the blue indicator, that signals the differential tripping and which cannot be activated in case of manual operation on the toggle. This prevents any misinterpretations of the device and system status.

Contact position indicator (CPI): to always know the status of the contacts (red: closed contacts; green: open contacts).



The terminals available on DS201-DS202C make easier the supply operation in parallel with busbars as they are composed by two different seats, a front seat for 25 mm2 cables and a back seat for 10 mm2 busbars.

All the devices of the DS201 and DS202C series have been tested in a wide range of temperatures: from -25 °C (as indicated by the snowflake marked on the front side) up to +55°C.

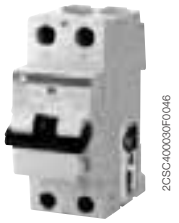
Label carrier for clear and reliable identification.
With the practical label carrier fitted in the new circuit breakers you can give maximum visibility to the information relating to the protected loads.

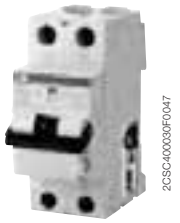
All the quality ensured by the main international marks is clearly visible on the device even if installed in the switchboard.

Product description and EAN code laser printed on the lateral side of the device for an easier stock management.

Technical features table for RCBOs
DS201and DS202C Series

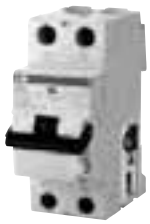
Standards			
Electrical features			
Type (wave form of the earth leakage sensed)			
Poles			
Rated current I_n		A	
Rated sensitivity $I_{\Delta n}$		mA	
Rated voltage U_e		V	
Insulation voltage U_i		V	
Max. operating voltage of circuit test		V	
Min. operating voltage of circuit test		V	
Rated frequency		Hz	
Rated breaking capacity acc. to IEC/EN 61009	ultimate I_{cn}	A	
Rated residual breaking capacity $I_{\Delta m}$		kA	
Rated impulse withstand voltage (1.2/50) U_{imp}		kV	
Dielectric test voltage at ind. freq. for 1 min.		kV	
Thermomagnetic release characteristic	B: 3 In ≤ Im ≤ 5 In		
	C: 5 In ≤ Im ≤ 10 In		
Surge current resistance (wave 8/20)		A	
Mechanical features			
Toggle			
Flag indicators			
Electrical life			
Mechanical life			
Protection degree	housing		
	terminals		
Tropicalization acc. to IEC/EN 60068-2	constant climatic conditions	°C/RH	
	variable climatic conditions	°C/RH	
Reference temperature for setting of thermal element		°C	
Ambient temperature (with daily average ≤ +35 °C)		°C	
Storage temperature		°C	
Installation			
Terminal type			
Terminal size top/bottom for cables		mm^2	
Terminal size top/bottom for busbar		mm^2	
Tightening torque top/bottom		N*m	
Mounting			
Connection			
Dimensions and weight			
Dimensions (H x D x W)		mm	
Weight		g	
Combination with auxiliary elements			
Combinable with:	auxiliary contact		
	signal contact/auxiliary switch		
	shunt trip		
	undervoltage release		





	DS201 L			DS201			DS202C
IEC / EN 61009							
AC	A	APR	AC	A	APR	A
1P+N	1P+N	1P+N	1P+N	1P+N	1P+N	2P
6…32	6…32	6…32	6…40	2…40	6…40	6…32
30	10, 30, 300	30	30,100	10, 30, 100, 300	30	30
230-240						
500						
254						
110						
50…60						
4500			6000			6000
4.5			6			6
4						4
2.5						2.5
			■	■		■
■	■	■	■	■	■	■
250	250	3000	250	250	3000	250
black sealable in ON-OFF position						
differential trip indicator (blue); contact position indicator (green/red)						
10000						
20000						
IP4X						
IP2X						
23/83 - 40/93 - 55/20						
25/95 - 40/95						
30						
-25…+55						
-40…+70						
failsafe bi-directional cylinder-lift terminal at top and bottom (shock protected)						
25/25						
10/10						
2.8						
on DIN rail EN 60715 (35 mm) by means of fast clip device						
from top and bottom						
85x69x35						
239						
yes						
yes						
yes						
yes						

Ordering Information
DS201 L - AC type



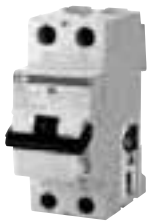
DS201 L - AC

Function: protection of end user single-phase circuits against overload and short-circuit currents; protection against the effects of sinusoidal alternating earth fault currents; protection against indirect contact and additional protection against direct contact ($I_{\Delta n}$=30 mA).
Standard: IEC/ EN 61009
I_{cn} = 4500 A

C characteristic

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1+N	30	6	2	171201	DS201 L C6 AC30	2CSR245040R1064		0.275	5
		10	2	171300	DS201 L C10 AC30	2CSR245040R1104		0.275	5
		16	2	171409	DS201 L C16 AC30	2CSR245040R1164		0.275	5
		20	2	171508	DS201 L C20 AC30	2CSR245040R1204		0.275	5
		25	2	171607	DS201 L C25 AC30	2CSR245040R1254		0.275	5
		32	2	171706	DS201 L C32 AC30	2CSR245040R1324		0.275	5

Ordering Information
DS201 L - A type



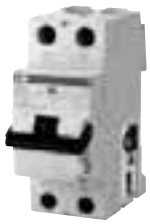
DS201 L - A

Function: protection of end user single-phase circuits against overload and short-circuit currents; protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contact and additional protection against direct contact ($I_{\Delta n}$=30 mA).
Standard: IEC/ EN 61009
I_{cn} = 4500 A

C characteristic

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1+N	10	6	2	163404	DS201 L C6 A10	2CSR245140R0064		0.275	5
		10	2	171003	DS201 L C10 A10	2CSR245140R0104		0.275	5
		16	2	171102	DS201 L C16 A10	2CSR245140R0164		0.275	5
	30	6	2	172406	DS201 L C6 A30	2CSR245140R1064		0.275	5
		10	2	172505	DS201 L C10 A30	2CSR245140R1104		0.275	5
		16	2	172604	DS201 L C16 A30	2CSR245140R1164		0.275	5
		20	2	172703	DS201 L C20 A30	2CSR245140R1204		0.275	5
		25	2	173809	DS201 L C25 A30	2CSR245140R1254		0.275	5
		32	2	173908	DS201 L C32 A30	2CSR245140R1324		0.275	5
	300	6	2	174004	DS201 L C6 A300	2CSR245140R3064		0.275	5
		10	2	174103	DS201 L C10 A300	2CSR245140R3104		0.275	5
		16	2	174202	DS201 L C16 A300	2CSR245140R3164		0.275	5
		20	2	174301	DS201 L C20 A300	2CSR245140R3204		0.275	5
		25	2	174707	DS201 L C25 A300	2CSR245140R3254		0.275	5
		32	2	174806	DS201 L C32 A300	2CSR245140R3324		0.275	5

Ordering Information
DS201 L - APR type



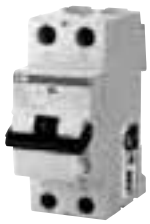
DS201 L - APR

Function: protection against the effects of sinusoidal alternating and direct pulsating earth fault currents, providing an optimal trade-off between safety and continuity of service, thanks to the resistance to unwanted tripping; protection against indirect contact and additional protection against direct ($I_{\Delta n}$=30mA) contact; protection and isolation of resistive and inductive loads.
Standard: IEC/ EN 61009
I_{cn} = 4500 A

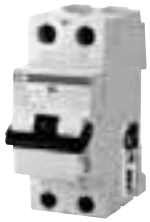
C characteristic

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1+N	30	6	2	174905	DS201 L C6 APR30	2CSR245440R1064		0.275	5
		10	2	175001	DS201 L C10 APR30	2CSR245440R1104		0.275	5
		16	2	175100	DS201 L C16 APR30	2CSR245440R1164		0.275	5
		20	2	175209	DS201 L C20 APR30	2CSR245440R1204		0.275	5
		25	2	175605	DS201 L C25 APR30	2CSR245440R1254		0.275	5
		32	2	175704	DS201 L C32 APR30	2CSR245440R1324		0.275	5

Ordering Information
DS201 - AC type



DS201 B - AC



DS201 C - AC

Function: protection of end user single-phase circuits against overload and short-circuit currents; protection against the effects of sinusoidal alternating earth fault currents; protection against indirect contact and additional protection against direct contact ($I_{\Delta n}$=30 mA).
Standard: IEC/ EN 61009
I_{cn} = 6000 A

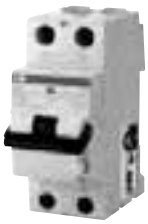
B characteristic

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1+N	30	6	2	279709	DS201 B6 AC30	2CSR255040R1065		0.275	5
		10	2	280309	DS201 B10 AC30	2CSR255040R1105		0.275	5
		13	2	285205	DS201 B13 AC30	2CSR255040R1135		0.275	5
		16	2	285304	DS201 B16 AC30	2CSR255040R1165		0.275	5
		20	2	285403	DS201 B20 AC30	2CSR255040R1205		0.275	5
		25	2	285502	DS201 B25 AC30	2CSR255040R1255		0.275	5
		32	2	285601	DS201 B32 AC30	2CSR255040R1325		0.275	5
		40	2	285700	DS201 B40 AC30	2CSR255040R1405		0.275	5
	100	6	2	285809	DS201 B6 AC100	2CSR255040R2065		0.275	5
		10	2	285908	DS201 B10 AC100	2CSR255040R2105		0.275	5
		13	2	286004	DS201 B13 AC100	2CSR255040R2135		0.275	5
		16	2	286103	DS201 B16 AC100	2CSR255040R2165		0.275	5
		20	2	286202	DS201 B20 AC100	2CSR255040R2205		0.275	5
		25	2	286301	DS201 B25 AC100	2CSR255040R2255		0.275	5
		32	2	286400	DS201 B32 AC100	2CSR255040R2325		0.275	5
		40	2	286509	DS201 B40 AC100	2CSR255040R2405		0.275	5

C characteristic

1+N	30	6	2	294504	DS201 C6 AC30	2CSR255040R1064		0.275	5
		10	2	294603	DS201 C10 AC30	2CSR255040R1104		0.275	5
		13	2	294702	DS201 C13 AC30	2CSR255040R1134		0.275	5
		16	2	294801	DS201 C16 AC30	2CSR255040R1164		0.275	5
		20	2	294900	DS201 C20 AC30	2CSR255040R1204		0.275	5
		25	2	295006	DS201 C25 AC30	2CSR255040R1254		0.275	5
		32	2	296003	DS201 C32 AC30	2CSR255040R1324		0.275	5
		40	2	296102	DS201 C40 AC30	2CSR255040R1404		0.275	5
	100	6	2	296201	DS201 C6 AC100	2CSR255040R2064		0.275	5
		10	2	296409	DS201 C10 AC100	2CSR255040R2104		0.275	5
		13	2	370802	DS201 C13 AC100	2CSR255040R2134		0.275	5
		16	2	370901	DS201 C16 AC100	2CSR255040R2164		0.275	5
		20	2	371601	DS201 C20 AC100	2CSR255040R2204		0.275	5
		25	2	371700	DS201 C25 AC100	2CSR255040R2254		0.275	5
		32	2	371809	DS201 C32 AC100	2CSR255040R2324		0.275	5
		40	2	498100	DS201 C40 AC100	2CSR255040R2404		0.275	5

Ordering Information
DS201 - A type



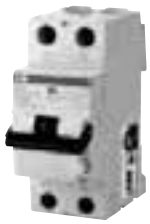
DS201 B - A

Function: protection of end user single-phase circuits against overload and short-circuit currents; protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contact and additional protection against direct contact ($I_{\Delta n}$=30 mA).
Standard: IEC/ EN 61009
I_{cn} = 6000 A

B characteristic

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1+N	10	10	2	995708	DS201 B10 A10	2CSR255140R0105		0.275	5
		13	2	995807	DS201 B13 A10	2CSR255140R0135		0.275	5
		16	2	995906	DS201 B16 A10	2CSR255140R0165		0.275	5
	30	6	2	638506	DS201 B6 A30	2CSR255140R1065		0.275	5
		10	2	647805	DS201 B10 A30	2CSR255140R1105		0.275	5
		13	2	655503	DS201 B13 A30	2CSR255140R1135		0.275	5
		16	2	655602	DS201 B16 A30	2CSR255140R1165		0.275	5
		20	2	655701	DS201 B20 A30	2CSR255140R1205		0.275	5
		25	2	766902	DS201 B25 A30	2CSR255140R1255		0.275	5
		32	2	814504	DS201 B32 A30	2CSR255140R1325		0.275	5
		40	2	910602	DS201 B40 A30	2CSR255140R1405		0.275	5
	100	6	2	990307	DS201 B6 A100	2CSR255140R2065		0.275	5
		10	2	990406	DS201 B10 A100	2CSR255140R2105		0.275	5
		13	2	990505	DS201 B13 A100	2CSR255140R2135		0.275	5
		16	2	990604	DS201 B16 A100	2CSR255140R2165		0.275	5
		20	2	990703	DS201 B20 A100	2CSR255140R2205		0.275	5
		25	2	990802	DS201 B25 A100	2CSR255140R2255		0.275	5
		32	2	990901	DS201 B32 A100	2CSR255140R2325		0.275	5
		40	2	991007	DS201 B40 A100	2CSR255140R2405		0.275	5
	300	6	2	991908	DS201 B6 A300	2CSR255140R3065		0.275	5
		10	2	992004	DS201 B10 A300	2CSR255140R3105		0.275	5
		13	2	992103	DS201 B13 A300	2CSR255140R3135		0.275	5
		16	2	992202	DS201 B16 A300	2CSR255140R3165		0.275	5
		20	2	992301	DS201 B20 A300	2CSR255140R3205		0.275	5
		25	2	992400	DS201 B25 A300	2CSR255140R3255		0.275	5
		32	2	992509	DS201 B32 A300	2CSR255140R3325		0.275	5
		40	2	992608	DS201 B40 A300	2CSR255140R3405		0.275	5

Ordering Information
DS201 - A type



DS201 C - A

C characteristic

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1+N	10	10	2	996002	DS201 C10 A10	2CSR255140R0104		0.275	5
		13	2	996101	DS201 C13 A10	2CSR255140R0134		0.275	5
		16	2	996200	DS201 C16 A10	2CSR255140R0164		0.275	5
	30	2	2	123958	DS201 C2 A30	2CSR255140R1024		0.275	5
		4	2	942306	DS201 C4 A30	2CSR255140R1044		0.275	5
		6	2	942405	DS201 C6 A30	2CSR255140R1064		0.275	5
		8	2	124054	DS201 C8 A30	2CSR255140R1084		0.275	5
		10	2	952503	DS201 C10 A30	2CSR255140R1104		0.275	5
		13	2	976004	DS201 C13 A30	2CSR255140R1134		0.275	5
		16	2	976103	DS201 C16 A30	2CSR255140R1164		0.275	5
		20	2	976202	DS201 C20 A30	2CSR255140R1204		0.275	5
		25	2	976301	DS201 C25 A30	2CSR255140R1254		0.275	5
		32	2	990109	DS201 C32 A30	2CSR255140R1324		0.275	5
		40	2	990208	DS201 C40 A30	2CSR255140R1404		0.275	5
	100	6	2	991106	DS201 C6 A100	2CSR255140R2064		0.275	5
		10	2	991205	DS201 C10 A100	2CSR255140R2104		0.275	5
		13	2	991304	DS201 C13 A100	2CSR255140R2134		0.275	5
		16	2	991403	DS201 C16 A100	2CSR255140R2164		0.275	5
		20	2	991502	DS201 C20 A100	2CSR255140R2204		0.275	5
		25	2	991601	DS201 C25 A100	2CSR255140R2254		0.275	5
		32	2	991700	DS201 C32 A100	2CSR255140R2324		0.275	5
		40	2	991809	DS201 C40 A100	2CSR255140R2404		0.275	5
	300	6	2	992707	DS201 C6 A300	2CSR255140R3064		0.275	5
		8	2	124351	DS201 C8 A300	2CSR255140R3084		0.275	5
		10	2	992806	DS201 C10 A300	2CSR255140R3104		0.275	5
		13	2	992905	DS201 C13 A300	2CSR255140R3134		0.275	5
		16	2	993001	DS201 C16 A300	2CSR255140R3164		0.275	5
		20	2	993100	DS201 C20 A300	2CSR255140R3204		0.275	5
		25	2	993209	DS201 C25 A300	2CSR255140R3254		0.275	5
		32	2	993308	DS201 C32 A300	2CSR255140R3324		0.275	5
		40	2	993407	DS201 C40 A300	2CSR255140R3404		0.275	5

Ordering Information
DS201 - APR type

DS201 C - APR

Function: protection of end user single-phase circuits against overload and short-circuit currents; protection against the effects of sinusoidal alternating and direct pulsating earth fault currents, providing an optimal trade-off between safety and continuity of service thanks to the resistance to unwanted tripping; protection against indirect contact and additional protection against direct ($I_{\Delta n}$=30 mA) contact; protection and isolation of resistive and inductive loads.
Standard: IEC/ EN 61009
I_{cn} = 6000 A

C characteristic

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1+N	30	6	2	997306	DS201 C6 APR30	2CSR255440R1064		0.275	5
		10	2	997405	DS201 C10 APR30	2CSR255440R1104		0.275	5
		13	2	997504	DS201 C13 APR30	2CSR255440R1134		0.275	5
		16	2	997603	DS201 C16 APR30	2CSR255440R1164		0.275	5
		20	2	997702	DS201 C20 APR30	2CSR255440R1204		0.275	5
		25	2	997801	DS201 C25 APR30	2CSR255440R1254		0.275	5
		32	2	997900	DS201 C32 APR30	2CSR255440R1324		0.275	5
		40	2	998006	DS201 C40 APR30	2CSR255440R1404		0.275	5

Ordering Information
DS202C - A type

DS202 B - A

DS202 C - A

Function: protection of end user two-phase circuits against overload and short-circuit currents; protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contact and additional protection against direct contact ($I_{\Delta n}$=30 mA).
Standard: IEC/ EN 61009
I_{cn} = 6000 A

B characteristic

N. of poles	Rated residual current	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	IΔn mA	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
2	30	6	2	132257	DS202C B6 A30	2CSR252140R1065		0.275	5
		10	2	132356	DS202C B10 A30	2CSR252140R1105		0.275	5
		13	2	132455	DS202C B13 A30	2CSR252140R1135		0.275	5
		16	2	132554	DS202C B16 A30	2CSR252140R1165		0.275	5
		20	2	132653	DS202C B20 A30	2CSR252140R1205		0.275	5
		25	2	132752	DS202C B25 A30	2CSR252140R1255		0.275	5
		32	2	132851	DS202C B32 A30	2CSR252140R1325		0.275	5

C characteristic

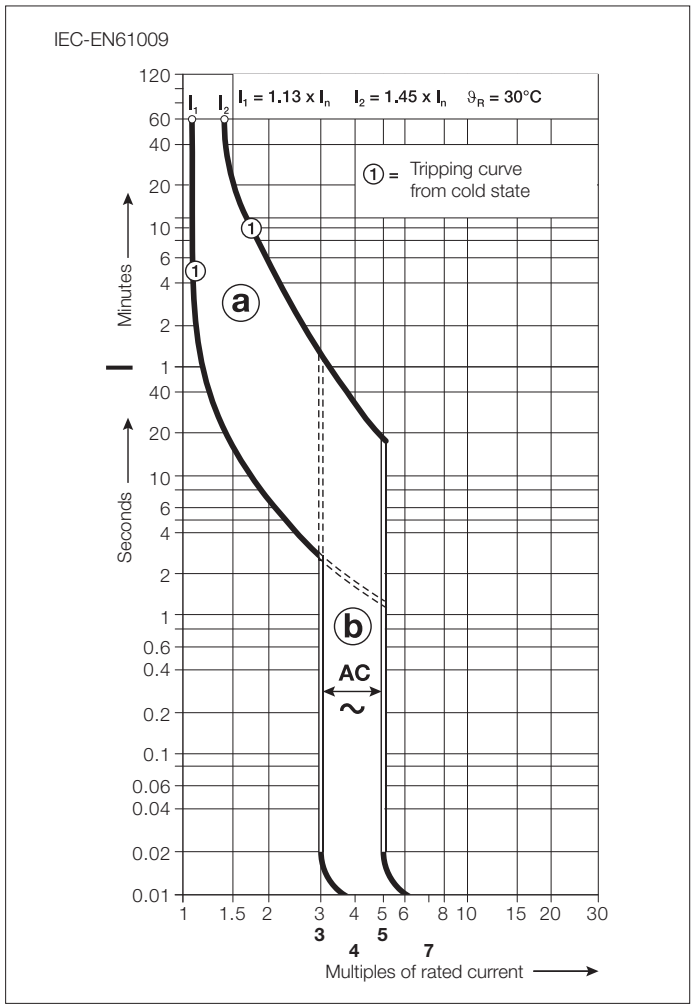
2	30	6	2	122357	DS202C C6 A30	2CSR252140R1064		0.275	5
		10	2	122456	DS202C C10 A30	2CSR252140R1104		0.275	5
		13	2	122555	DS202C C13 A30	2CSR252140R1134		0.275	5
		16	2	122654	DS202C C16 A30	2CSR252140R1164		0.275	5
		20	2	122753	DS202C C20 A30	2CSR252140R1204		0.275	5
		25	2	122852	DS202C C25 A30	2CSR252140R1254		0.275	5
		32	2	122951	DS202C C32 A30	2CSR252140R1324		0.275	5

Technical details
DS201 and DS202C Series

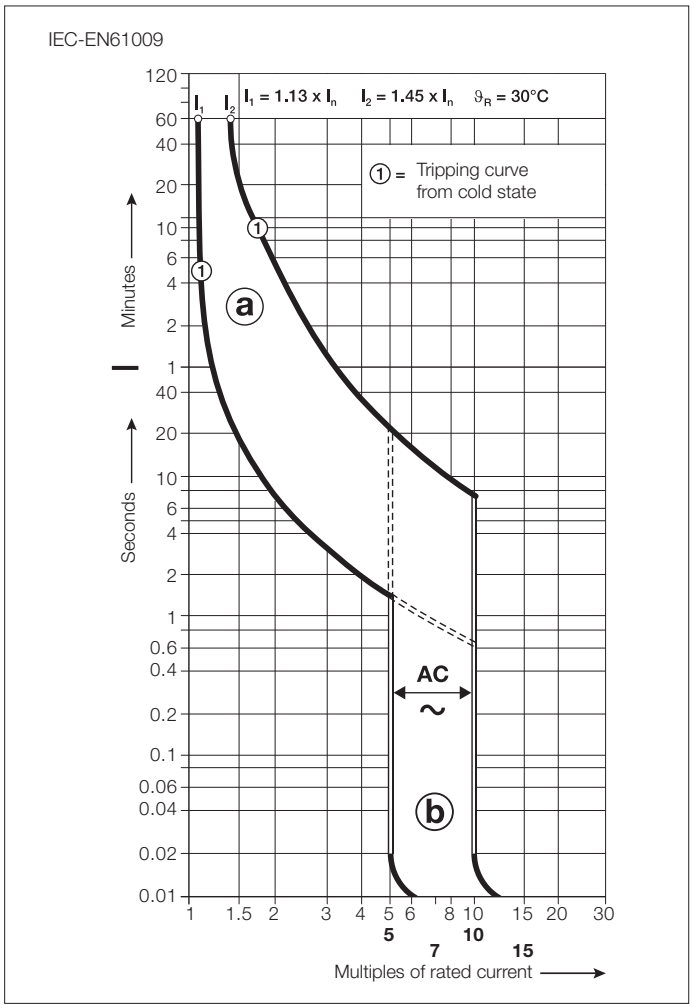
Tripping diagrams

2

B characteristic



C characteristic

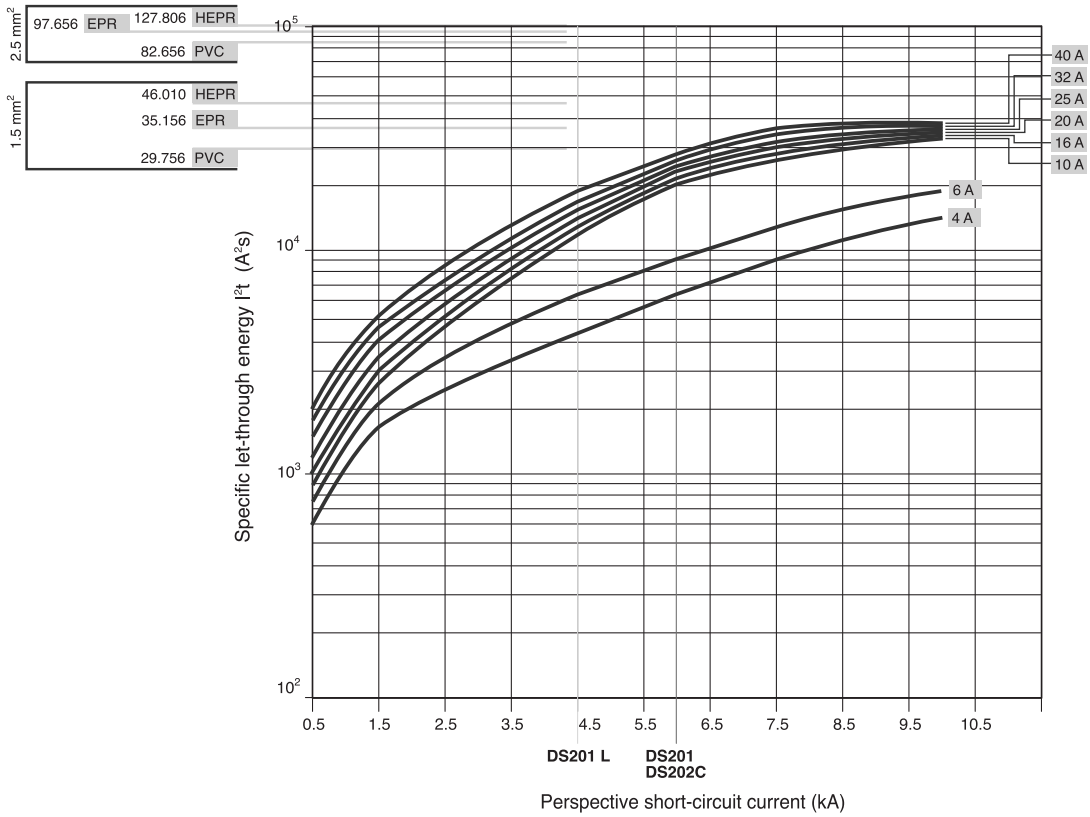


ⓐ **thermal trip**
ⓑ **electromagnetic trip**

Limitation of specific let-through energy I^2t

The I^2t curves give the values of the specific let-through energy expressed in A^2s (A=amps; s=seconds) in relation to the perspective short-circuit current (Irms) in kA.

DS201 L - DS201 - DS202C
230 V let-through energy

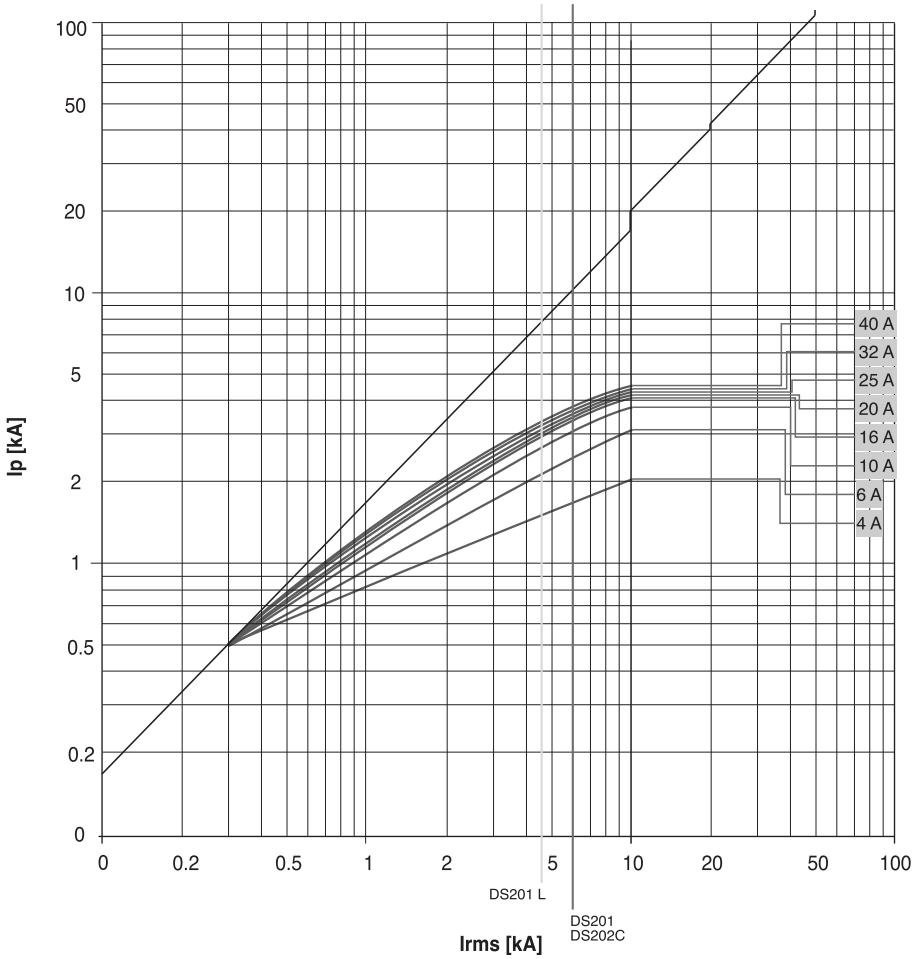


Technical details
DS201 and DS202C Series

Peak current Ip

The Ip curves give the values of the peak current, expressed in kA, in relation to the perspective symmetrical short-circuit current (kA).

DS201 L - DS201 - DS202C
230 V



Power loss and internal resistance

DS201

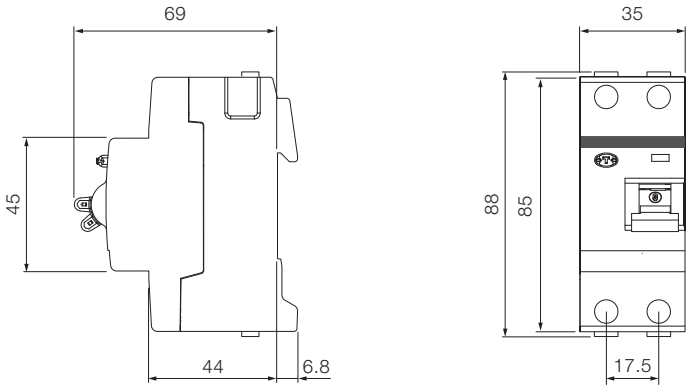
Rated current In [A]	Power loss [W]	Internal resistance [mΩ]
2	1.6	411
4	2.5	155
6	4.4	123.4
8	1.5	23.1
10	2.3	23.1
13	2.2	13.3
16	3.4	13.3
20	4.4	11.1
25	3.9	6.2
32	5.9	5.8
40	8.6	5.4

DS202C

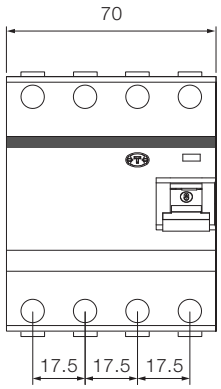
Rated current In [A]	Power loss [W]	Internal resistance [mΩ]
6	8.1	224.8
10	4.1	40.6
13	3.5	21
16	5.4	21
20	6.6	16.6
25	5.5	8.8
32	8.2	8

Overall dimensions

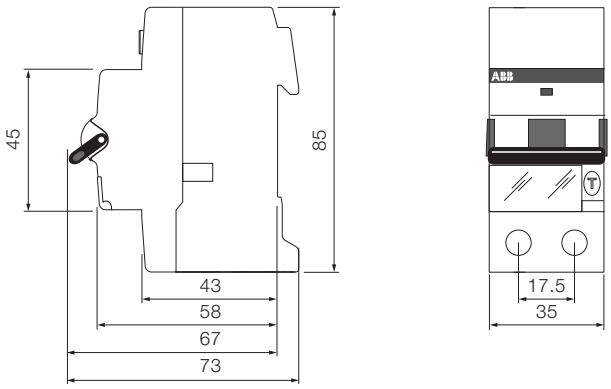
FH202 - F202



FH204 - F204



DS201 - DS202C



Surge protective devices

OVR Plus and T2 range. The details make the difference
A complete range for your surge protection

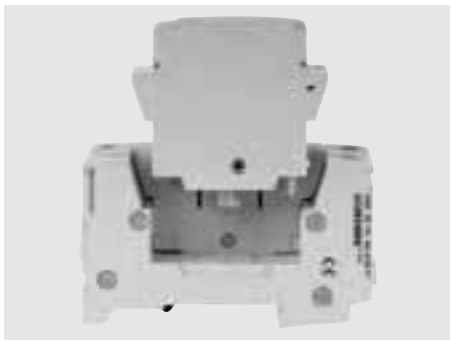
Standard pro *M* terminals design for a better coordination with the complete ABB System pro *M* compact® modular range.

Clear information on the front of the product indicating the technical characteristics of the OVR T2 range.

Pluggable cartridges.

Visualisation of the status of the SPD on the front of the product.

The bidirectional cylindrical terminal block of the OVR T2 and Plus range allows a complete coordination with the ABB range with considerable time savings in wiring operations. All the devices allow connection through busbars, both from above and from below.



The pluggable feature of ABB surge arresters facilitates maintenance. Should one or more worn cartridges need to be replaced, the electrical circuit does not have to be isolated nor do the wires have to be removed.

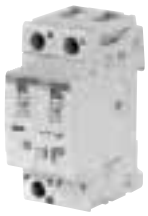
The end-of-service-life indicator of the surge protective device signals the status of the device. A mechanical indicator turns from green to red when the SPD reaches the end of its service life.

The toggle of the miniature circuit breaker indicates the status of the OVR Plus range.
If the toggle is on, the surge protection is active.
If the toggle is off and can be switched on again, the device has protected your equipment.
If the toggle is off and cannot be swicthed on. The device must be changed.

The configuration allows to use the OVR Plus range on TT and TNS network in Phase + Neutral and 3 Phases + Neutral with a high surge capacity up to 40kA Imax.

Technical features table surge arresters
OVR and OVR PLUS Series

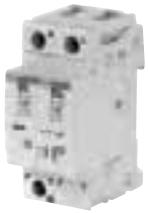
			OVR T1+2 xx 7 s P
Technology			MOVs
Electrical features			
Standard			EN 61643-11, IEC 61643-1
Type / test class			T1-T2 / I-II
Poles			- / 1N / 3L / 4L
Types of networks			TNC-TNS-TT
Type of current		V	AC
Nominal voltage Un (L-N/L-L)		V	230/400
Max. cont. operating voltage Uc		V	275
Impulse current Iimp (10/350) per pole		kA	7
Maximum discharge current Imax (8/20) per pole		kA	70
Nominal discharge current In (8/20) per pole		kA	7
Voltage protection level Up (L-N / N-PE / L-PE)		kV	0,9
Residual voltage Ures at 3kA (L-N / N-PE)		kV	0,8
Follow current interrupting rating Ifi		kA	na
TOV (Temporary overvoltage) withstand Ut (L-N: 5s./N-PE: 200ms)		V	334
Continuous operating current Ic		mA	<1
Short-circuit withstand capability		kA	50
Disconnector	gG -gL fuse	A	≤ 50
	curve C circuit breaker	A	≤ 50
Pluggable cartridge			Yes
Integrated thermal disconnector			Yes
State indicator			Yes
TS auxiliary contact			No
Mechanical features			
Stocking temperature		°C	-40 to +80
Operating temperature			-40 to +70
Degree of protection			IP 20
Fire resistance according to UL 94			V0
Installation			
Wire range (L, N)			
solid wire		mm²	2.5 …25
stranded wire		mm²	2.5 …16
Stripping length (L, N)		mm	12,5
Tightening torque (L, N)		Nm	2,8
Technical features of the integrated auxiliary contact (TS)			
Electrical features			
Contact complement			-
Min. load			-
Max. load			-
Installation			
Connection cross-section		mm²	-



	OVR T2 xx xx 275 P			OVR T2 xx xx 440 P			OVR Plus N1 40	OVR Plus N3 XX
	MOVs			MOVs			MOVs	
	EN 61643-11, IEC 61643-1			EN 61643-11, IEC 61643-1			EN 61643-11, IEC 61643-1	
	T2 / II			T2 / II			T2 / II	
	-	3L / 4L	1N / 3N	-	3L / 4L	1N / 3N	N1	N3
	TNC-TNS		TNS-TT	IT-TNC-TNS		TNS-TT	TT-TNS	
	AC			AC			AC	
	230/400			400/400			230/400	
	275			440			320	
	-			-			-	-
	15 / 40			15 / 40			40	15 / 40
	5 / 20			5 / 20			20	5 / 20
	- / - / 1.0	-/ -/ 1.4	1.4 / 1.4 / 1.5	- / - / 1.0	-/ -/ 1.9	1.9 / 1.4 / 1.9	1.6 / - / 1.8	1.3 / 1.3 / 1.3 2.0 / 1.5 / 2.0
	- / - / 0.9		0.9 / 0.9 / 0.9	- / - / 1.3		1.3 / 1.2 / 1.3	1.0 / - / 1.0	1.1 / 1.1 / 1.1
	na			na			na	na
	334 / -		334 / 1200	440 / -		440 / 1200	334 / 1200	
	<1			<1			<1	
	50			50			15	10 / 15
	≤ 50			≤ 50			Integrated MCB disconnector	
	≤ 50			≤ 50			Integrated MCB disconnector	
	Yes			Yes			No	
	Yes			Yes			Yes	
	Yes			Yes			Yes (MCB)	
	Option			Option			S2C-H6R	
	-40 to +80							
	-40 to +70							
	IP 20							
	V0							
	2.5 …25			2.5 …25			2.5 … 25	
	2.5 …16			2.5 …16			2.5 … 16	
	12,5			12,5			11	
	2.8			2.8			2.8	
	1 NO - 1 NC			1 NO - 1 NC			-	
	12 VDC - 10mA			12 VDC - 10mA			-	
	250 VAC - 1A			250 VAC - 1A			-	
	1.5			1.5			-	

Ordering Information
OVR and OVR PLUS Series - Type 1+2 and Type 2

OVR T2 15

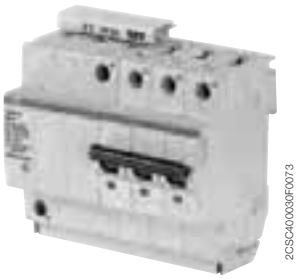


OVR T2 N1 15

OVR PLUS N1 40

OVR T2 3L 40

OVR T2 3N 15



OVR PLUS N3 40

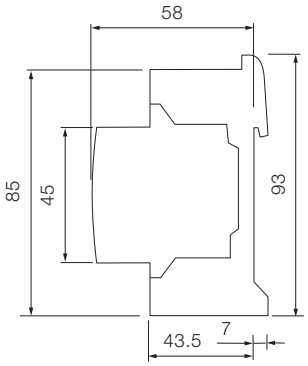
OVR T2 4L 40

Surge Protective Devices, Type 2, to protect sensible equipment and the installation from indirect surges.

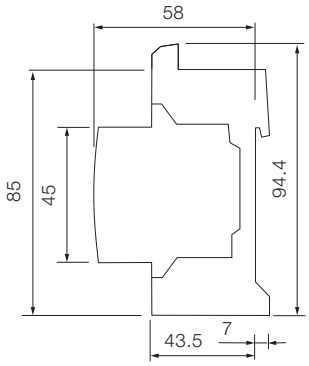
N. of poles	Nom. voltage Un	Impulse current limp	Max. disch. current Imax	N° module	Bbn 3660308	Order details			Weight 1 piece	Pack unit
	V		kA	17,5 mm	EAN	Type code	Order code	Price	Kg	
1	230	7	70	1	513403	OVR T1+2 7 275 s P	2CTB815101R3900		0.120	1
	230	-	15	1	514882	OVR T2 15 275	2CTB804200R0100		0.120	1
	230	-	15	1	512840	OVR T2 15 275 P	2CTB803851R2400		0.120	1
	230	-	40	1	514103	OVR T2 40 275	2CTB804201R0100		0.120	1
	230	-	40	1	512833	OVR T2 40 275 P	2CTB803851R2300		0.120	1
	400	-	15	1	512772	OVR T2 15 440 P	2CTB803851R1100		0.120	1
	400	-	40	1	512789	OVR T2 40 440 P	2CTB803851R1200		0.120	1
1+N	230	-	15	2	513106	OVR T2 1N 15 275 P	2CTB803952R1200		0.220	1
	230	-	40	2	513250	OVR T2 1N 40 275 P	2CTB803952R1100		0.220	1
	230	-	40	2	517005	OVR PLUS N1 40	2CTB803701R0400		0.260	1
3	230	7	70	1	513410	OVR T1+2 3L 7 275 s P	2CTB815101R0400		0.400	1
	230	-	15	2	512987	OVR T2 3L 15 275 P	2CTB803853R3400		0.350	1
	230	-	40	2	513366	OVR T2 3L 40 275 P	2CTB803853R2400		0.350	1
	400	-	40	2	516879	OVR T2 3L 40 440 P	2CTB803953R2600		0.350	1
3+N	230	7	70	1	514141	OVR T1+2 3N 7 275 s P	2CTB815502R1000		0.500	1
	230	-	15	2	513151	OVR T2 3N 15 275 P	2CTB803953R1200		0.450	1
	230	-	40	2	513267	OVR T2 3N 40 275 P	2CTB803953R1100		0.450	1
	230	-	15	2	517081	OVR PLUS N3 15	2CTB803701R0400		0.790	1
	230	-	40	2	517074	OVR PLUS N3 40	2CTB803701R0300		0.790	1
4	230	7	70	1	513427	OVR T1+2 4L 7 275 s P	2CTB815101R4100		0.500	1
	230	-	15	2	513038	OVR T2 4L 15 275 P	2CTB803853R6000		0.450	1
	230	-	40	2	513274	OVR T2 4L 40 275 P	2CTB803853R5600		0.450	1
	400	-	40	2	516916	OVR T2 4L 40 440 P	2CTB803853R5100		0.450	1

Overall dimensions

OVR T2



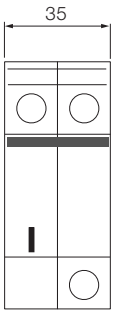
OVR T2 with TS



1-pole

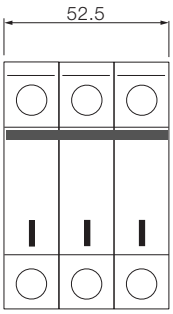
OVR T1+2 7
OVR T2 15
OVR T2 40

2-poles (1P+N)



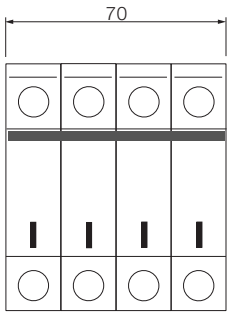
OVR T2 1N 15
OVR T2 1N 40

3-poles



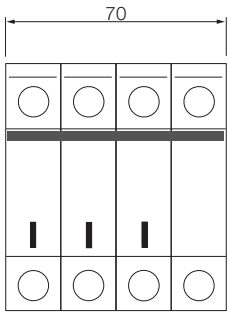
OVR T1+2 3L 7
OVR T2 3L 15
OVR T2 3L 40

4 poles (4P+0)



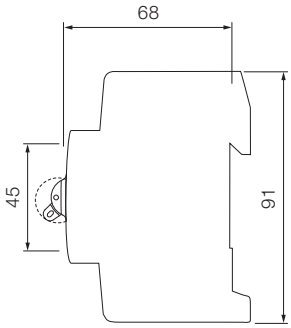
OVR T1+2 4L 7
OVR T2 4L 15
OVR T2 4L 40

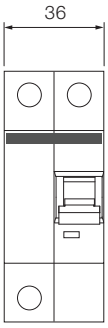
3 poles (3P+N)



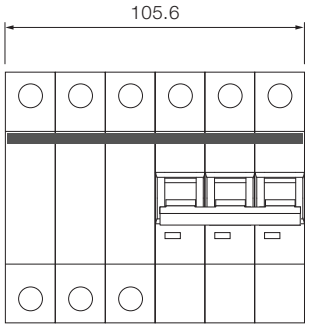
OVR T1+2 3N 7
OVR T2 3N 15
OVR T2 3N 40

OVR Plus





OVR Plus N1 40



OVR Plus N3 15
OVR Plus N3 40

Other protection devices

Ordering information

Ordering Information
E 90 fuseholders for 10.3x38 mm fuses

E 91/32

E 91HN/32

E 93HN/32

E 90h fuseholders are suitable for protection against overloads and short circuits. Available in a single module 1P+N version and in a three-module 3P+N version, they are designed for use with gG and aM cylindrical fuse links. The body is made from self-extinguishing material resistant to high temperatures, while the contact clips are in silver-plated copper.
E 90h fuseholders can be sealed or padlocked to assure operator safety during maintenance. Versions with blown fuse indicator allow to check whether the fuse is still working correctly or not.

N. of poles	Rated current	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	In A	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
1	32	1	009238	E 91/32	2CSM200923R1801		0.061	6
1+N	32	1	009139	E 91HN/32	2CSM200913R1801		0.070	6
3+N	32	3	047438	E 93HN/32	2CSM204743R1801		0.192	2

Ordering Information
TM fail safe bell transformers

TM15/12

These transformers, with safety extremely-low voltage secondary (SELV), are suitable for loads that require a discontinuous supply, and in particular doorbells and chimes.
Fail safe operation and excellent safety are assured thanks to the perfect isolation and separation between the primary and secondary circuits.

Maxim. rated power (disc.)	Second. voltage rating	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
VA	V AC	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
10	4-8-12	2	367109	TM10/12	2CSM101021R0801		0.300	6
10	12-24	2	367208	TM10/24	2CSM101041R0801		0.300	6
15	4-8-12	2	367307	TM15/12	2CSM151021R0801		0.300	6
15	12-24	2	367406	TM15/24	2CSM151041R0801		0.300	6
30	4-8-12	3	367505	TM30/12	2CSM301021R0801		0.450	4
30	12-24	3	367604	TM30/24	2CSM301041R0801		0.450	4

Ordering Information
TS non-inherently short-circuit proof bell transformers

TS8/8

TS8/12 SW

TS24/8-12-24

These transformers, with safety extremely-low voltage secondary (SELV), are suitable for driving loads that call for a discontinuous supply, and in particular doorbells and chimes. In addition to perfect isolation and separation between the primary and secondary circuits, the TS transformers have a thermal protection device integrated into the secondary that makes them resistant to short circuit currents (non-inherently short-circuit proof).
In addition, the TS8/SW series is equipped with a switch for controlling loads connected to the secondary.

Maxim. rated power (disc.)	Second. voltage rating	Switch 0-1	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
VA	V AC		[17,5 mm]	EAN	Type code	Order code	Price	Kg	
8	8		2	368007	TS8/8	2CSM081301R0811		0.355	6
8	12		2	368106	TS8/12	2CSM081401R0811		0.355	6
8	24		2	368205	TS8/24	2CSM081501R0811		0.355	6
8	8	■	2	368304	TS8/8SW	2CSM081302R0811		0.277	6
8	12	■	2	368403	TS8/12SW	2CSM081402R0811		0.277	6
8	4-6-8	■	2	368601	TS8/4-6-8SW	2CSM081012R0811		0.280	6
8	4-8-12	■	2	368700	TS8/4-8-12SW	2CSM081022R0811		0.280	6
16	8		2	368809	TS16/8	2CSM161301R0811		0.355	6
16	12		2	368908	TS16/12	2CSM161401R0811		0.355	6
16	24		2	369004	TS16/24	2CSM161501R0811		0.330	6
16	4-6-8		2	369103	TS16/4-6-8	2CSM161011R0811		0.330	6
16	4-8-12		2	369202	TS16/4-8-12	2CSM161021R0811		0.330	6
24	4-8-12		3	369301	TS24/4-8-12	2CSM241021R0811		0.465	4
24	8-12-24		3	369400	TS24/8-12-24	2CSM241031R0811		0.465	4

Ordering Information
TS-C safety isolating transformers for general use

TS25/12-24 C

TS63/12-24 C

These transformers are non-inherently short-circuit proof. In fact they are equipped with a thermal protective device which automatically restores the power when the transformer is sufficiently cooled down. So even during an overload or a short-circuit they maintain their temperature below the specified limits and they continue functioning after the fault's removal. They are ideal for supplying permanent power to meters, auxiliary electronic devices (e.g. measurement, video-entry phone systems, BUS communication) and circuits with safety extremely-low voltage (SELV) for bathrooms and showers, lighting, fountains, electro-medical devices and suchlike.
One important feature of these new devices is that they take up very little space in the 4-module size for the 25 and 40 VA versions and the 5-module size for the 63 VA version.

Rated power (cont.)	Second. rated voltage	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
VA	V	[17,5 mm]	EAN	Type code	Order code	Price	Kg	
25	12-24	4	928508	TS25/12-24 C	2CSM251043R0811		0.920	1
40	12-24	4	928607	TS40/12-24 C	2CSM401043R0811		1.000	1
63	12-24	5	928706	TS63/12-24 C	2CSM631043R0811		1.150	1

Ordering Information
Bells and buzzers

TSM

TSR

The range of bells and buzzers includes modular versions for discontinuous use SM1, RM1, TSM and TSR, suitable for acoustic signalling in residential and commercial sectors, and versions for continuous use SM2 and RM2, which are able to operate continuously for up to 12 hours while maintaining the quality and level of the sound. RM2 and SM2 are dedicated to specific applications such as acoustic signalling in the industry, alarms notification, supervision and intensive use (schools, factories etc...). TSM and TSR versions also include a transformer: the input is 230V a.c. and the bell is supplied in 12 or 24 V.

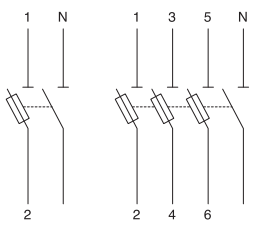
Rated voltage	Use	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
V AC		[17,5 mm]	EAN	Type code	Order code	Price	Kg	
TSM modular electronic bell (two-tones) + transformer included								
230	Discontinuous	2	007005	TSM	2CSM100000R0841		0.300	6
TSR bell + buzzer + transformer included								
230	Discontinuous	2	369608	TSR	2CSM100000R0831		0.300	1

Technical details

E 90

		E 90/32	E 90hN/32
Fuse	mm	10 x 38	
Current type		AC / DC	
Rated frequency	Hz	= / 50-60	
Rated current	A	32	
Max power dissipation	W	3	
Tightening torque	Nm	PZ2 2-2.5	PZ2 0.8-1.2
Terminal cross section	mm^2	25	16
Protection degree		IP20	
Can be padlocked (open)		■	
Can be sealed (closed)		■	
IEC 60947-3			
Rated operating voltage	V	400	-
Utilization category		AC-22B	-
Markings		IMQ, NF	-
Alternate current characteristics according to IEC 60947 - 3			
Rated operating voltage	V	690	-
Utilization category		AC-22B	-
Direct current characteristics according to IEC 60947 - 3			
Rated operating voltage	V	690	-
Utilization category		DC-20B*	-
IEC 60269-1			
Rated AC voltage	V	690	
Rated DC voltage	V	690	
IEC 60269-2			
Fuse system		F	
Rated AC voltage	V	690	
Rated DC voltage	V	440	
Breaking capacity	kA	200 (AC) – 100 (DC)	
IEC 60269-3			
Fuse system		B	
Rated AC voltage	V	400	
Markings		-	IMQ
IEC 60269-4			
Fuse system		F	
Rated AC voltage	V	690	
Rated DC voltage	V	690	
UL 4248			
Mark		-	cURus

Electrical symbols



1P+N **3P+N**

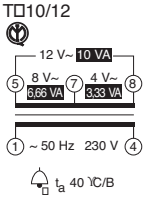
Technical details

TM

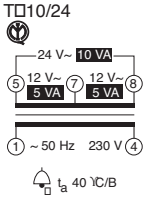
		TM
Rated primary voltage Un	V	230 a.c.
Rated secondary voltage Un	V	4, 8, 12, 24
Rated frequency	Hz	50/60
Rated power (discontinuous)	VA	10, 15, 30, 40
Power loss	W	1…4
Modules	No.	2 (TM10,TM15), 3 (TM30,TM40)
Cable section (Ø min/max)	mm^2	1.5 / 10
Tightening torque	Nm	1
Protection degree		IP 20
Reference standards		IEC/EN 61558-2-8
Approvals		GOST, IMQ (TM10, TM15, TM30)

Wiring diagrams and marking information

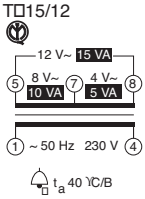
TD10/12



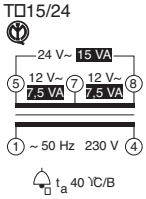
TD10/24



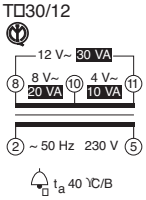
TD15/12



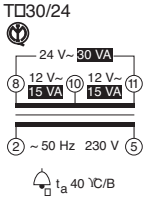
TD15/24



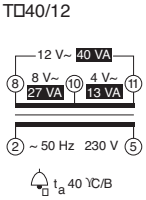
TD30/12



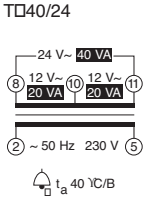
TD30/24



TD40/12



TD40/24

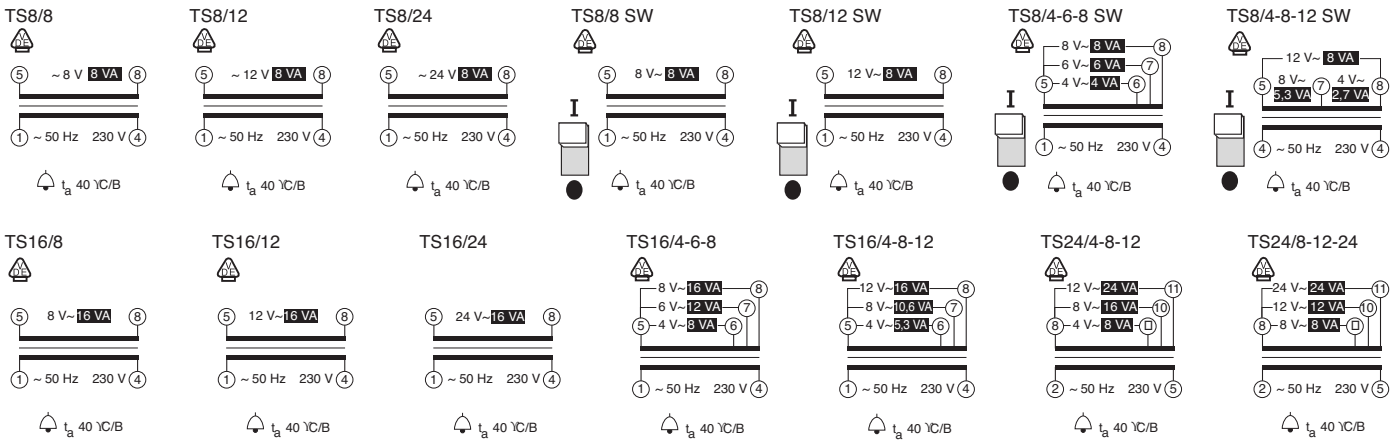


Technical details

TS

		TS
Rated primary voltage Un	V	230 a.c.
Rated secondary voltage Un	V	4, 8, 12, 24
Rated frequency	Hz	50/60
Rated power (discontinuous)	VA	10, 15, 30, 40
Power loss	W	1…4
Modules	No.	2 (TM10,TM15), 3 (TM30,TM40)
Cable section (Ø min/max)	mm^2	1.5 / 10
Tightening torque	Nm	1
Protection degree		IP 20
Reference standards		IEC/EN 61558-2-8
Approvals		VDE, GOST

Wiring diagrams and marking information



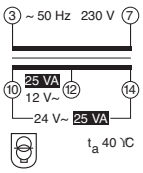
Technical details

TS C

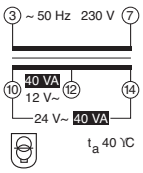
		TS 25 C	TS 40 C	TS 63 C
Primary rated voltage Un	V	230 AC	230 AC	230 AC
Secondary rated voltage Un	V	12 - 24 V AC	12 - 24 V AC	12 - 24 V AC
Rated frequency	Hz	50/60	50/60	50/60
Rated power (continuous use)	VA	25	40	63
Power loss	W	5	10	16,7
Modules	No.	4	4	5
Standards		IEC/EN 61558-2-6		
Approvals		IMQ, VDE, GOST		

Wiring diagrams and marking information

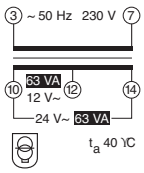
TS25/12-24 C



TS40/12-24 C



TS63/12-24 C

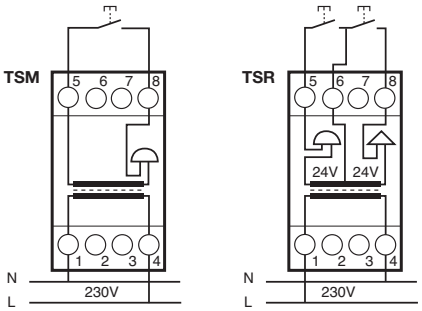


Technical details

TSM, TSR

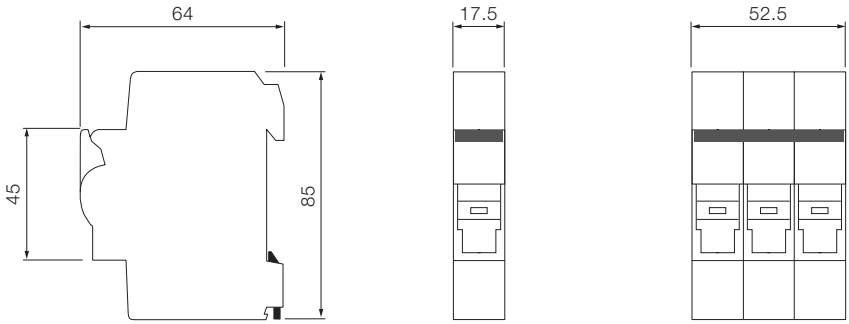
			TSM, TSR
Rated Voltage Un		V AC	230
Rated frequency		Hz	50
Power consumption		VA	5,5
Sound level at 1 meter	SM:	dB	80
	RM:	dB	70
Max permanent working time			TSM: 1 min TSR: 5 min
Max cable cross-section		mm^2	10
Mounting position			vertical only
Protection degree			IP20-IP40, switchboard mounting
Modules		No.	2

Wiring diagrams and marking information



Overall dimensions

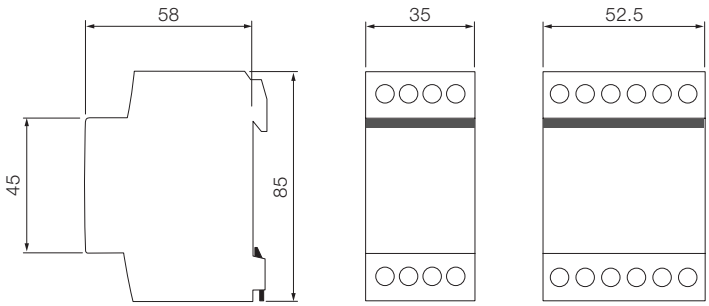
E 90 fuse disconnectors and E 90h fuse holders



1 module
1P, 1P+N (E 91h)

3 modules
3P+N (E 93h)

TM/TS bell transformers



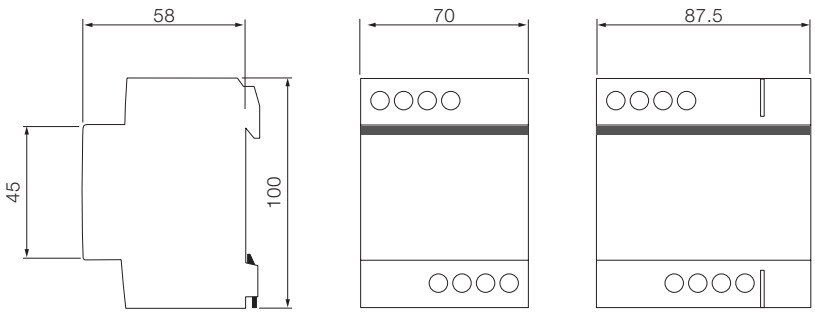
TM10...TM15

2 modules

TM30

3 modules

TS-C safety isolating transformers for general use



TS25, TS40

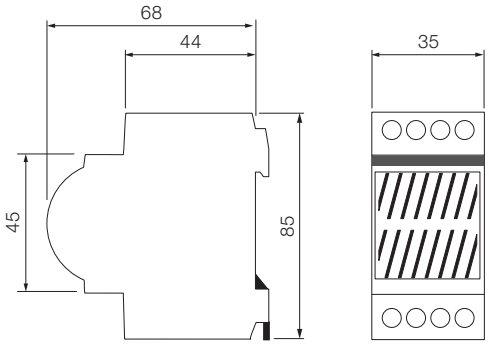
4 modules

TS63

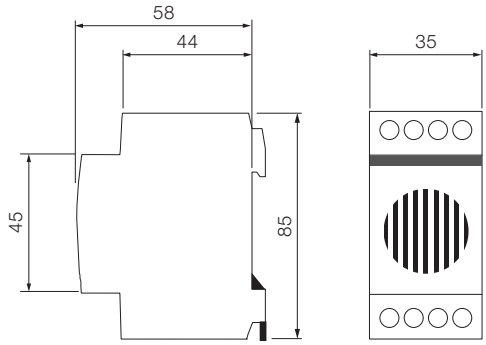
5 modules

Bells and buzzers

TSR



TSM



Busbars and end caps

Ordering Information

PSH3/12

Phase sequence	End cap	Bbn 4016779 EAN	Order details Type code	Order code	Price	Pack unit
TSM modular electronic bell (two-tones) + transformer included						
L1-L1-…	PSH-END 1.1	-	PSH 1/6	2CDL110001R1006		50
L1-L1-…	PSH-END 1.1	-	PSH 1/7	2CDL110001R1007		50
L1-L1-…	PSH-END 1.1	651868	PSH 1/12	2CDL110001R1012		50
L1-L1-…	PSH-END 1.1	651875	PSH 1/60	2CDL110001R1060		20
L1-L2-L1-…	incl.	651882	PSH 2/12	2CDL120001R1012		50
L1-L2-L1-…	PSH-END	651899	PSH 2/58	2CDL120001R1058		10
L1-L2-L3-L1-…	incl.	651905	PSH 3/12	2CDL130001R1012		50
L1-L2-L3-L1-…	PSH-END	651912	PSH 3/60	2CDL130001R1060		10
L1-L2-L3-N-L1-…	incl.	651929	PSH 4/12	2CDL140001R1012		30
L1-L2-L3-N-L1-…	PSH-END 1	651936	PSH 4/60	2CDL140001R1060		10
L1-N-L2-N-L3-N-…	PSH-END 1	-	PSH 4/58N	2CDL140001R1058		10
TSR bell + buzzer + transformer included						
-	-	653169	PSH-END 1.1	2CDL100011R0011		-
-	-	514729	PSH-END	2CDL100001R0001		-
-	-	653183	PSH-END 1	2CDL100001R0002		-

Command and alerts

Simplicity of control makes life easier
Command and alert devices

Using modular DIN-rail mounted devices (MDRC) such as on-off switches, pushbuttons, indicator lights, disconnectors, relays, contactors, bells and buzzers makes it possible to switch and control electric loads from a central location.
Thanks to signalling, operating states can be recognized easily and user always has the complete control of the situation.
The range is completed by a complete range of accessories and auxiliary elements such as auxiliary contact blocks, sealing cover and distance pieces

ABB offers a complete range of modular DIN-rail mounted devices (MDRC) that makes it possible to switch and control electric loads from a central location. Thanks to the new narrow width of only 9 mm (0.5 modular width) place is saved in the distribution board. Integration of modular installation devices in the distribution boards affords the additional advantage of intelligible signalling of electric loads operating states. Easy operation or interpretation of devices is ensured by the clearly recognizable switching position (toggle lever) and/or a status display by means of an LED light.
Depending on the system requirements, further signalling or control functionality for reliable operation can be used in the subdistribution board in the form of pushbuttons or indicator lights. Switch are available for different functions: on-off, change over, group control.
Commands can be coupled with electro-magnetic and electronic latching relays which allow contact switching for each impulse sent using single or parallel pushbutton. Ideal for load controlling from different positions, they are available in various versions according to pick-up voltage, contact position, installation options. They also allow manual operation on the product and contact position indicator (visual on the product).
Also important in command portfolio of product is the range of bells and buzzers, which includes modular versions for discontinuous use SM1 and RM1, suitable for acoustic signalling in residential and commercial sectors.
Finally ESB and EN series of contactors, suitable for loads to be automatically controller through high number of operations. Contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. The ESB 24, 40, 63 contactors are used for the control of loads up to 24, 40, 63 A. Due to their DC solenoid actuator, the ESB 24 can be connected to AC or DC voltages.The EN contactors have a built-in toggle switch to select between three function modes: Off position, automatic run (normal contactor function), manual override with a return to Auto the next time the coil is energized.

Ordering Information
E 210 switches

These devices are specifically made for commanding loads and signalling electrical conditions in any low-voltage switchboard. They are available in half module or 1 module, depending on the contact-layout. The devices with indicator lights are equipped with a LED, which grants an optimal illumination with very low consumption.
The functions of these devices are particularly switching, pushing and signalling electrical conditions in any installations (low-voltage area)
General new features
- Space-saving through 9mm modules
- All terminals equipped with Pozidrive 1 screws
- Safe connection due to cage-clamp
- LED with bright colours and available in three different voltage ranges
- Different lens and button colours
- Compliance to international standards

E211

E 211-... ON-OFF switches

For example, such devices are used to switch indicators or other electrical components (like fan's, air-conditions, e.g.). The new On-Off switches distinguish themselves through simple handling, easy mounting and optimal functionality.

Rated current = 16A

Cont.	Rated voltage	Power loss	Width	N° module	Bbn 7612270	Order details			Weight 1 piece	Pack unit
	V AC	W	mm	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
1 NO	250	0.32	9	0.5	938575	E211-16-10	2CCA703000R0001		0.035	10
2 NO	230/400	0.82	9	0.5	938582	E211-16-20	2CCA703005R0001		0.045	10

E211X

E 211X-... ON-OFF switches with yellow LED for contact indication

Rated current = 16A
LED voltage 115-250 V AC
LED colour yellow

Cont.	Rated voltage	Power loss	Width	N° module	Bbn 7612270	Order details			Weight 1 piece	Pack unit
	V AC	W	mm	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
1 NO	250	0.50	9	0.5	938872	E211X-16-10	2CCA703100R0001		0.040	10
2 NO	230/400	1.00	18	0.5	938889	E211X-16-20	2CCA703110R0001		0.050	10

E214-16-101

E214-16-202

E 214-... Group switches (I-0-II, manual-OFF-automatic)

The new Group switches can be used to control the main installation of an emergency supply. Such devices distinguish themselves through simple handling, easy mounting and optimal functionality.

Rated current = 16A

Cont.	Rated voltage	Power loss	Width	N° module	Bbn 7612270	Order details			Weight 1 piece	Pack unit
	V AC	W	mm	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
1 CO	250	0.32	9	0.5	938735	E214-16-101	2CCA703025R0001		0.032	10
2 CO	250	0.82	18	1.0	938742	E214-16-202	2CCA703030R0001		0.064	10

Technical details		
Switching capacity		according to EN 60669-1
Isolating properties		according to EN 60669-2-4; IEC/EN 60947-3
Utilization category		AC-22A; DC-22A acc. IEC/EN60947-3
Short-circuit withstand capacity	[kA]	3
Rated voltage U_n	[V]	250/400 in accordance with EN
		240 in accordance UL 508
Lowest operat. voltage		24 V; 25 mA
Rated current I_n	[A]	16, 25, 32
LED current	[mA]	5
Rated frequency	[Hz]	50/60
Modules	[No]	0.5 or 1
Sealable		in ON and OFF position
Climatic resistance		according to IEC 60068-2-2 (Dry heat)
		IEC 60068-2-30 (Damp heat)
		IEC 60068-2-1 (Cold)
Ambient temperature	[°C/°F]	-25°C/-13°F to +55°C/+131°F
Storage temperature	[°C]	-40°C to +70°C
Connection capacity	[mm^2]	rom 1x1 mm^2 to 1x6 mm^2 or 2x2.5 mm^2 massive;
		lexible up 1x0.75 mm^2 to 2x1.5 mm^2 with connector
		leve or pin-endconnector
Tightening torque	[Nm]	1.2 - 1.5
Positive opening		according to EN 60204-1
Standards		DIN EN 60669-1 *VDE 0632-1
		DIN EN 60669-2-4 *VDE 0632-2-4
		UL 508
Approvals		VDE, UL, GOST, CCC

Ordering Information
E 210 pushbuttons with and without LEDs

The new products are available in 9 mm widths (= 0.5 modules).
The devices can be used in distribution boards and are all distinguished by their simple handling, ease of mounting and optimal functionality. The pushbuttons are used for remote control in all kinds of electrical installation (e.g. public, industrial). The range offers three different voltages.
(Ranges: 12-48 V AC/DC; 115-250 V AC and 110-220 V DC).

E215

E 215-... Pushbuttons
Rated current = 16A
Contacts: 1NO+1NC
Rated voltage: 250 V AC

Power loss	Button colour	Width	N° module	Bbn 7612270	Order details			Weight 1 piece	Pack unit
W		mm	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
0.50	grey	9	0.5	938810	E215-16-11B	2CCA703150R0001		0.042	10
0.50	red	9	0.5	938827	E215-16-11C	2CCA703151R0001		0.042	10
0.50	green	9	0.5	938834	E215-16-11D	2CCA703152R0001		0.042	10

E217

E 217-... Luminous Pushbuttons (3 different LED colours)
Rated current = 16A
Contacts: 1NO
Rated voltage: 250 V AC
LED Voltage range = 115-250 V AC

Power loss	LED colour	Width	N° module	Bbn 7612270	Order details			Weight 1 piece	Pack unit
W		mm	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
1.10	white	9	0.5	938988	E217-16-10B	2CCA703160R0001		0.050	10
1.10	red	9	0.5	938995	E217-16-10C	2CCA703161R0001		0.050	10
1.10	green	9	0.5	939008	E217-16-10D	2CCA703162R0001		0.050	10

Ordering Information
E 210 indicator Lights with LEDs

E219

The new products are available in 9 mm width (= 0.5 modules) and can be used for indicating any operational condition such as signalling loss of a phase.
The range offers three different voltages.
(Ranges: 12-48 V AC/DC; 115-250 V AC and 110-220 V DC).

Rated current = 16A
LED Voltage range = 115-250 V AC

Power loss	LED colour	Width	N° module	Bbn 7612270	Order details			Weight 1 piece	Pack unit
W		mm	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
0.47	white	9	0.5	939282	E219-B	2CCA703400R0001		0.040	10
0.47	red	9	0.5	939299	E219-C	2CCA703401R0001		0.040	10
0.47	green	9	0.5	939305	E219-D	2CCA703402R0001		0.040	10
0.47	yellow	9	0.5	939312	E219-E	2CCA703403R0001		0.040	10
0.47	blue	9	0.5	939329	E219-G	2CCA703404R0001		0.040	10

Pushbuttons and Indicator lights		
Rated Voltage U_n	[V]	250/400
Lowest operat. voltage		24 V; 25 mA
Rated current I_n	[A]	16
LED current	[mA]	5
Rated frequency	[Hz]	50/60
Modules	[No]	0.5
Tightening torque	[Nm]	1.2 - 1.5
Standards		EN 60669-1; EN 62094-1; UL 508
Approvals		Pushbuttons: VDE, UL, GOST, CCC Indicator lights: VDE, UL, GOST*

*CCC approval for these Indicator lights not required

Ordering Information
E 200 switches

E201

E202

E203

E204

Isolator for panel installation onto DIN rail acc. to DIN EN 60715
Mounting depth: 70mm
Mounting width: per pole = 17.5mm = 1module
Colour: grey, RAL 7035
Colour of switch lever: red RAL 3000 (r); grey RAL 7000 (g)

Special features
- Fast removal without dismantling of the busbar
- Captive screws with recessed/slotted head, Pozidriv size 2
- Add-on of up to 3 auxiliary contact S2C-H6R possible
- Integrated lay-on edge for labeling system ILS
- Locking device as accessories for unauthorized ON/OFF
- Approval: VDE, CCC, KEMA

N. of poles	Rated current	Rated voltage	Power loss	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	A	V AC	W	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
1	16	230	0.15	1	645621	E201/16r	2CDE281001R0016		0.095	10
	25	230	0.30	1	645645	E201/25r	2CDE281001R0025		0.095	10
	32	230	0.50	1	645669	E201/32r	2CDE281001R0032		0.095	10
	40	230	0.70	1	645683	E201/40r	2CDE281001R0040		0.095	10
	45	230	0.90	1	645706	E201/45r	2CDE281001R0045		0.095	10
	63	230	1.65	1	645720	E201/63r	2CDE281001R0063		0.095	10
2	16	400	0.30	2	645805	E202/16r	2CDE282001R0016		0.190	5
	25	400	0.60	2	645829	E202/25r	2CDE282001R0025		0.190	5
	32	400	0.95	2	645843	E202/32r	2CDE282001R0032		0.190	5
	40	400	1.40	2	645867	E202/40r	2CDE282001R0040		0.190	5
	45	400	1.80	2	645881	E202/45r	2CDE282001R0045		0.190	5
	63	400	3.30	2	645904	E202/63r	2CDE282001R0063		0.190	5
3	16	400	0.45	3	645980	E203/16r	2CDE283001R0016		0.290	3
	25	400	0.90	3	646000	E203/25r	2CDE283001R0025		0.290	3
	32	400	1.40	3	646024	E203/32r	2CDE283001R0032		0.290	3
	40	400	2.10	3	646048	E203/40r	2CDE283001R0040		0.290	3
	45	400	2.65	3	646062	E203/45r	2CDE283001R0045		0.290	3
	63	400	4.90	3	646086	E203/63r	2CDE283001R0063		0.290	3
4	16	400	0.60	4	646161	E204/16r	2CDE284001R0016		0.390	2
	25	400	1.20	4	646185	E204/25r	2CDE284001R0025		0.390	2
	32	400	1.90	4	646208	E204/32r	2CDE284001R0032		0.390	2
	40	400	2.80	4	646222	E204/40r	2CDE284001R0040		0.390	2
	45	400	3.50	4	646246	E204/45r	2CDE284001R0045		0.390	2
	63	400	6.55	4	646260	E204/63r	2CDE284001R0063		0.390	2

	E 200
Switching capacity	1.25 x In; 1.1 x Un; cosϕ = 0.3 acc. to DIN VDE 0632 16...100 A : AC-22A / 125 A : AC-23A acc. to VDE 0660 part 107, DIN EN 60947-3 resp. IEC 947-3, DC21-B for applications up to 60 V DC
Protection fuse	NH00 gL-gG ≤ rated current E 200
Positive opening	acc. to DIN VDE 0113
Suitable for isolation	acc. to DIN EN 60947-3
Short-circuit withstand capacity	16...100 A : 25 kA_{eff} in series with NH 00 ≤ 100 A gL-gG; 125 A : 6 kA_{eff} in series with NH 00 125 A gL-gG and S 2.. ≤63 A
Rated voltage	230/400 V AC; 50/60 Hz
Surge withstand capability U_{imp}	4 kV acc. to EN 60947-1
Ambient temperature	-25 °C to +55 °C
Storage temperature	-40 °C to +70 °C
Climatic resistance	constant climate 23/83, 40/93, 55/20 [°C/RH] alternating climate 25/95 - 40/93 [°C/RH]
Mounting position	optional
Degree of protection	IP10, IP40 in panelboard
Mechanical endurance	20000 switching cycles
Electrical endurance	1000 switching cycles
Min. voltage	12 V AC/DC at 0.1 VA
Min. contact loading	24 V/4 mA
Wire range	2.5 to 50 mm^2
Busbars	cross section ≥ 16 mm^2
Torque	2.5 Nm

Ordering Information
E 250 latching relays

E251

Allow switching of the contacts in response to each pulse sent to the coil via the normally open pushbuttons. Their high performance in the single or multi-point control of lamps make them an ideal solution for lighting circuits. The manual control lever also gives an indication of the contact position.
The relays come in versions with different coil voltages and contact configurations. The main modules, available in one-and two-contact versions, can be combined with two-pole power contact modules to obtain three-contact and four-contact devices. They can also be provided with auxiliary signal contacts.

E 250, 16 A

Contacts	Coil voltage	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
		[17.5 mm]	EAN	Type code	Order code	Price	Kg	
1 NO	230 V AC/ 115 V DC	1	530305	E251-230	2CSM111000R0201		0.114	12
2 NO	230 V AC/ 115 V DC	1	530800	E252-230	2CSM112000R0201		0.116	12

				E 251 / E 252 / E 256	
Technical details					
Rated current I_n			[A]	16	32
Rated voltage U_n			[V]	250 (1-2 contacts)	250 (1-2 contacts)
				400 (3-4 contacts)	400 (3-4 contacts)
Rated frequency			[Hz]	50/60 (1)	50/60 (1)
Contacts	main module	NO		1 - 2	1 - 2
		change-over		1 - 2	1 - 2
		NO+NC		1 + 1	1 + 1
	additional	NO		2	2
	power contacts	change-over		2	-
		NO+NC		1+1	-
Width	main module		[mod.]	1	1
(no. of DIN modules)	with additional power contacts		[mod.]	2	2
Control coil characteristics	supply voltage: DC/AC ratio (2)			0,5 : 1	0,5 : 1
	tolerance on supply voltage			±10%	±10%
	power consumption AC	holding (3)	[VA]	11	11,5
		pick-up	[VA]	14,5	16,5
	power consumption DC		[W]	7,5	8
Pulse durations	minimum pulse duration (at Un)		[s]	0,05	0,05
	minimum pulse duration (90% Un)		[s]	0,1	0,1
	minimum interval between two pulses		[s]	0,15	0,15
	maximum number of pulses per minute			250	250
Lifetime in number	electrical (in AC-1 at full load)			4×10^5	3×10^5
of operations (4)	mechanical			2×10^6	2×10^6
Load characteristics	maximum load in AC-1 per phase		[A]	20	32
	minimum load per phase (under 5 V)		[W]	2	2
	short circuit protection fuse (gL)		[A]	20	32
Maximum no. of lamps (103	incandescent and halogen		[W]	3000	4000
operations/h)	fluorescent, corrected power factor	series	[VA]	4000	4000
	($\cos\phi = 0,9$)	parallel	[VA]	2500	3200
	fluorescent, uncorrected power factor		[VA]	1800	2200
	($\cos\phi = 0,5$)				
Maximum number	non illuminated			unlimited	unlimited
of buttons	illuminated	3 wires		unlimited	unlimited
General characteristics	DIN rail mount			yes	yes
	hooking on bistable DIN rail			yes	yes
	two position knob			yes	yes
	contact position indication			yes	yes
	label-holder			yes	yes
	cage terminals			yes	yes
	captive screws			yes	yes
	sealable terminals			yes	yes
	cable section (o min./max.)		[mm^2]	1,5/10 (2P: 6)	1,5/10 (2P: 6)
	min./max. operating temperature		[°C]	-20...+45	-20...+46

(1) All latching relays can also be used at 60Hz. In this case and escluding E255, you can use maximum one auxiliary contact E250H but it is not possible to use power contacts E250CM.

(2) Supply voltage: all devices operate in both a.c. and d.c., with the specified voltage ratios, except for the 115 V a.c. version that operates at 48 V d.c..

(3) The relays can withstand the "button stuck" condition. When the application calls for the relays to be permanently supplied, spacers must be used on either side, making sure that the duty cycle allows the device to cool down to ambient temperature.

(4) 1 cycle = 2 operations per pole (closing + opening)

Ordering Information
E 260 electronic latching relays

E262

E262C

The electronic version of latching relays guarantees maximum reliability, life, and noiseless operation. The E 260 C version also allows centralized reset function (ON/OFF).

Latching relays with control electronics

Coil voltage U_C = 230 V AC

Contacts	Power loss	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	W*	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
1 NO	1.5 (2.0)	1	575966	E261-230	2CDE141000R0301		0.085	1
2 NO	1.7 (3.6)	1	575973	E262-230	2CDE142000R0301		0.096	1
1 NO+1 NC	1.7 (3.6)	1	575980	E266-230	2CDE144000R0301		0.096	1

Latching relays with control electronics for central ON/OFF switch

The central commands have always priority and reliably switch on/off any given number of devices connected in parallel, irrespective of their previous switching position. Local control inputs are blocked when a central command is received. Same potential at central / local control input.

Coil voltage U_C = 230 V AC

Contacts	Power loss	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	W*	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
1 NO	1.5 (2.0)	1	576024	E261C-230	2CDE141000R0311		0.085	1
2 NO	1.7 (3.0)	1	576031	E262C-230	2CDE142000R0311		0.096	1
1 NO+1 NC	1.7 (3.0)	1	576048	E266C-230	2CDE144000R0311		0.096	1

* Values in brackets indicate power loss when permanently excitated, rated voltage and rated contact loading.

	E 260/E 260 C	E 261 SRV-230
Technical details		
Rated load at 250 V AC	8 A	16 A
Incandescent lamp load	1000 W	1600 W
Fluorescent lamp load in twin-lamp circuit	1000 W	1000 W
Fluorescent lamp load shunt compensated	350 W (1)	500 W
Fluorescent lamp load inductive or capacitive	500 W	1000 W
Electronic ballast	I_{on} m 70 A/10 ms (2)	I_{on} m 70 A/10 ms (2)
Inductive load, cosϕ = 0.6/230 V ~	5 A	5 A
Contact rating at DC	100 W	100 W
Minimum contact rating	4 V AC/10 mA	4 V AC/10 mA
Contact gap/contact material	0.5 mm/Ag SnO_2	0.5 mm/Ag SnO_2
Service life mecha--nical switchover at 103/h	> 10^7	> 10^7
Service life at rated load cosϕ = 1 and 103/h	> 10^5	> 10^5
Service life with filament lamps at 103/h	800 W > 10^5 , 1000 W > 0.8x10^5	1000 W > 10^5
Service life at rated load cosϕ = 0.6 and 103/h	> 10^4	> 10^4
Max. switching rate	10^3/h	10^3/h
Bounce time	3 ms	
Connection capacity	2 x 1.5 mm^2 with connector sleeve 2 x 2.5 mm^2 without connector sleeve	
Tightening torque	0.5 … 0.8 Nm	0.5 … 0.8 Nm
ON duration at rated voltage	100 %	100 %
Coil voltage range	0.9 to 1.1 U_n	0.9 to 1.1 U_n
Minimum command time/interval between commands	50/1000 ms	50 ms
Ambient temperature	-20 °C / -4 °F to 50 °C / 122 °F	-20 °C / - 4 °F to 50 °C / 122 °F
Control current when controlled locally	230 V AC 115 mA, after 10s 8 mA -± 20 % 24 V UC 140 mA, after 10s 80 mA ± 20 %	
Control current when controlled centrally	230 V AC 8 mA, after 10s 3 mA -± 20 % 24 V UC 17 mA ± 20 %	
Max. parallel capacity of individual control wire at 230 V ~	0.7 µF (ca. 2000 m)	
Max. parallel capacity of central control wire at 230 V ~	0.2 µF (ca. 700 m)	
Max. glow lamp current – parallel to 230 V control buttons	10 mA	10 mA
Max. induced voltage at 230 V control inputs	0.2 U_n	120 V

Latching relays for lamp installations on request.
(1) E 260 C can not be used with fluorescent lamp load shunt compensated.
(2) In the case of electronic control gear, take into account a 40-fold inrush current.

Ordering Information
FLR flush mounting latching relays

FLR

3

Speed and ease of assembly, along with their compact size, make the FLR flush mounting latching relays suitable for installation inside flush mount or junction boxes. They are ideal for implementing multipoint command of lighting systems in residential and commercial installations, so as to simplify and reduce the cost of wiring.

Contacts	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
1	-	063759	FLR1-230	2CSM206375R0241		0.060	20
2	-	063957	FLR5-230	2CSM206395R0241		0.060	20

		FLR1	FLR5
Technical details			
Contact type		1NO	2NO
Number of sequences	[No.]	2	4
Rated voltage	[V]	12 / 230 AC	
Rated load		10 A / 250 V AC	
Max. Peak current	[A]	15	
Max. switching power	[VA]	2500	
Max. switching voltage	[V]	250 AC	
Incandescent lamp load	[W]	805	
Fluorescent lamp load	[W]	345	
Frequency	[Hz]	50-60	
Type of operation		sequential - mechanical	
Protection degree		IP20	
Max. number of electrical operations	[No.]	100000	
Max. number of mechanical operations	[No.]	300000	
Insulation resistance	[MΩ]	100 (500 V DC)	
Dielectric strength (contacts)	[V]	2000 AC	
Dielectric strength (coil)	[V]	3500 AC	
Power dissipation	[VA]	4.5	
Operating temperature	[°C]	-25…+55	
Max. Cable section at terminals	[mm²]	1...2.5	
Terminals		screw	
Installation type		wall/flush mounting	
Dimensions (LxWxH)	[mm]	45 x 22 x 45	
Standards		EN 60669-1; EN 60669-2-1	

Ordering Information
E 259 installation relays

E259

E 259 Installation relays are 16 A contactors specifically engineered for residential and commercial applications. Their high performance in the control of lamps makes them ideal for lighting circuit applications.
The front control lever indicates the position of the contacts and allows the relay to be commanded, for example for local testing of the circuit.
In installations that require several E 259 relays side by side, it is advisable to use E 259 DIS half-module width spacer elements every second relay for heat dissipation.

Contacts	Coil voltage	N° module [17.5 mm]	Bbn 8012542 EAN	Order details Type code	Order code	Price	Weight 1 piece Kg	Pack unit
1 NO	230 V AC / 115 V DC	1	735939	E259 16-10/230	2CSM273593R0401		0.100	12
2 NO	230 V AC / 115 V DC	1	736233	E259 16-20/230	2CSM273623R0401		0.100	12
1 NO+1NC	230 V AC / 115 V DC	1	736530	E259 16-11/230	2CSM273653R0401		0.100	12

					E 259
Technical details					
Rated voltage U_n				[V]	250
Rated frequency				[Hz]	50
Rated current in AC1/AC-7a				[A]	16
Control coil characteristics	AC power supply voltage			[V]	8, 12, 24, 48, 115, 230
	DC power supply voltage			[V]	6, 12, 24, 48, 115
	DC/AC ratio (1)				0.5 : 1
	operation limits				±10%
	power consumption AC		pick-up	[VA]	3.4
			holding	[VA]	1.8
	power consumption DC			[W]	2.1
Load characteristics per phase	maximum load AC-1			[kW]	3
	maximum load AC-5b			[kW]	1.8
	maximum load AC-7b			[kW]	0.9
	maximum load AC-3 (400V)			[kW]	-
	maximum load (under 5V)			[W]	2
	short circuit fuse protection [gL]			[A]	20
Lifetime in number of operations	electrical (in AC-1 at full load)			[No.]	3 x 105
	mechanical			[No.]	2 x 106
Max.lamp power	Incandescent and halogen (40-200W)			[W]	1800
	Fluorescent	Parallel p.f. correction (cosϕ=0.9)		[VA]	500
		p.f. uncorrected (cosϕ=0.5)		[VA]	900
Width (number of DIN modules)				[No.]	1
Cable cross section (Ø min/max)				[mm^2]	1.5 / 10
Maximum torque on terminals				[Nm]	1
Min./Max. ambient T ° at installation point				[°C]	-20 … +45
Standard					IEC EN 60947-4-1, IEC EN 61095

(1) Control coil voltage: all the products work both in AC and DC (with the specified ratio) except the 115 V AC version that works at 48 DC

Ordering Information
SM/RM bells and buzzers

SM1

The range of bells and buzzers includes modular versions for discontinuous use SM1, RM1, TSM and TSR, suitable for acoustic signalling in residential and commercial sectors, and versions for continuous use SM2 and RM2, which are able to operate continuously for up to 12 hours while maintaining the quality and level of the sound. RM2 and SM2 are dedicated to specific applications such as acoustic signalling in the industry, alarms notification, supervision and intensive use (schools, factories etc...). TSM and TSR versions also include a transformer: the input is 230V a.c. and the bell is supplied in 12 or 24 V.

Rated voltage	Use	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
V AC		[17.5 mm]	EAN	Type code	Order code	Price	Kg	
SM electro-mechanical modular bells								
8/12	Discontinuous	1	886204	SM1-12	2CSM111000R0821		0.076	12
230	Discontinuous	1	886303	SM1-230	2CSM131000R0821		0.076	12
RM electro-mechanical modular buzzers								
8/12	Discontinuous	1	886419	RM1-12	2CSM211000R0821		0.076	12
230	Discontinuous	1	886518	RM1-230	2CSM231000R0821		0.076	12

		SM1-12, RM1-12	SM1-230, RM1-230
Technical details			
Rated Voltage U_n	[V AC]	8-12	230
Rated frequency	[Hz]	50	50
Power consumption	[VA]	2,5-6,5	4,5
Sound level at 1 meter	SM: [dB]	82	82
	RM: [dB]	80	80
Max permanent working time		15 min	15 min
Max cable cross-section	[mm^2]	10	10
Mounting position		vertical only	
Protection degree		IP20-IP40, switchboard mounting	
Modules	[No.]	1	1

Ordering Information
ESB installation contactors

ESB 20-20

ESB 24-40

ESB 63-40

Application: the ESB contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. They are part of the complete range of Din rail products and can be integrated easily in dedicated panels.
ESB20 are AC coil operated.
The ESB 24, 40, 63 contactors are used for the control of loads up to 24, 40, 63 A.
Due to their DC solenoid actuator, the ESB 24 can be connected to AC or DC voltages.
This provides the following benefits:
Hum-free operating system, no vibration, silent in operation, low power consumption, integrated high overvoltage protection 5 kV. You can choose between a various N.O. and N.C. contacts combination.
Main accessories for ESB 24, 40, 63: auxiliary contact blocks EH04.

Main poles	Control coil voltage		N° module	Bbn 3471520	Order details			Weight 1 piece	Pack unit
	50 Hz	60 Hz	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
ESB 20									
2 NO	230 V	264 V	1	263263	ESB 20-20	GHE 321 1102 R0006		0.140	10
2 NC	230 V	264 V	1	263867	ESB 20-02	GHE 321 1202 R0006		0.140	10
1 NO 1 NC	230 V	264 V	1	263560	ESB 20-11	GHE 321 1302 R0006		0.140	10

Main poles	Control coil voltage		N° module	Bbn 4013614	Order details			Weight 1 piece	Pack unit
	40...450 Hz	DC	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
ESB 24									
2 NO	230...240 V	230...240 V	2	146756	ESB 24-20	GHE 329 1402 R0006		0.280	5
4 NO	230...240 V	230...240 V	2	084454	ESB 24-40	GHE 329 1102 R0006		0.280	5
4 NC	230...240 V	230...240 V	2	084546	ESB 24-04	GHE 329 1202 R0006		0.280	5
ESB 40									
4 NO	230...240 V	230...240 V	3	084867	ESB 40-40	GHE 349 1102 R0006		0.400	3
ESB 63									
4 NO	230...240 V	230...240 V	3	084973	ESB 63-40	GHE 369 1102 R0006		0.420	3

Ordering Information
ESB installation contactors

		ESB20 (AC operated)	ESB24 (AC/DC operated)	ESB40 (AC/DC operated)	ESB63 (AC/DC operated)
Technical details					
Main Pole - Utilization Characteristics according to IEC					
Rated operational voltage U_e max.	V	250	400		
Rated frequency limits	Hz	50/60	40...450		
Utilization category AC-1 / AC-7a					
for air temperature close to contactor < 55 °C (NO)	A	20	24	40	63
Max. rated operational current Ie AC-1 / AC-7a (NC)	A	20	24	30	30
Rated operational power AC-1					
230 V - 1 phase	kW	4	5.3	8.8	13.8
400 V - 3 phases	kW	-	16	26	41
Utilization category AC-3 / AC-7b for air temperature close to contactor < 55 °C					
Max. rated operational current Ie AC-3/AC-7b					
230 V - 1 phase	A	9	9	22	30
400 V - 3 phases	A	-	9	22	30
Rated operational power AC-3					
230 V - 1 phase	kW	1.1	2.2	5.5	8
400 V - 3 phases	kW	-	4	11	15
Rated making capacity AC-3		10 x I_e / AC-3			
Rated breaking capacity AC-3		8 x I_e / AC-3			
Short-circuit protection for contactors gG type fuse	A	20	35	63	80
Rated short-time withstand current I_{cw}	A	72		176	240
at 40 °C ambient temp., in free air, from a cold state 10 s					
Heat dissipation per pole Ie/AC-1/AC-7a	W	1	1.5	3	6
Max. electrical switching frequency					
- for AC-1 / AC-7a	cycles/h	300			
- for AC-3 / AC-7b	cycles/h	600			
Electrical durability					
- for AC-1 / AC-7a	cycles	150000	150000	150000	150000
- for AC-3 / AC-7b	cycles	150000	500000	170000	240000
Mechanical durability					
- millions of operating cycles		1.000.000			
Magnet System Characteristics					
Coil operating limits acc. to IEC 60947-4-1		0.85 ... 1.1 x U_c (at θ m 55 °C)			
Drop-out voltage in % of U_c		approx. 20 ... 75 %	approx. 20 ... 70 %		
Frequency range	Hz	50/60	40 ... 450		
Coil consumption					
Average pull-in value	VA/W	8 / 5	4 / 4	5 / 5	65 / 65
Average holding value	VA/W	3.2 / 1.2	4 / 4	5 / 5	4.2 / 4.2
Connecting Characteristics					
Connecting capacity (min. ... max.)					
Main pole terminals					
Rigid 1 x mm²		1.5 ... 10	-	1.5 ... 25	-
2 x mm²		1.5 ... 4	-	1.5 ... 10	-
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529 Protection against direct contact in acc. with EN 50274					
All terminals		IP20	-	IP20	-

Ordering Information
EN series contactors

EN 20-20

EN 24-40

EN 40-40

Application: the EN contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. They are part of the complete range of Din rail products and can be integrated easily in dedicated panels.
Description: EN contactors have a built-in toggle switch to select between three function modes: Off position, automatic run (normal contactor function), manual override with a return to Auto the next time the coil is energized.
This offers many advantages as: You can make functionnal test before installation start-up. It can be used for maintenance operation, to change lamps and test it. It provides higher safety and drop out as you can switch the application manually.
The toggle switch is also used for household application like water heating where double tariff of kWh is used.

Main poles	Control coil voltage		N° module	Bbn 3471520	Order details			Weight 1 piece	Pack unit
	50 Hz	60 Hz	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
EN 20									
2 NO	230 V	264 V	1	265069	EN 20-20	GHE 322 1101 R0006		0.140	10

Main poles	Control coil voltage		N° module	Bbn 4013614	Order details			Weight 1 piece	Pack unit
	40...450 Hz	DC	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
EN 24									
4 NO	230...240 V	230...240 V	2	133688	EN 24-40	GHE 326 1101 R0006		0.240	5
3 NO	230...240 V	230...240 V	2	134319	EN 24-30	GHE 326 1501 R0006		0.230	5
EN 40									
2 NO	230...240 V	230...240 V	3	129582	EN 40-20	GHE 342 1401 R0006		0.400	3
3 NO	230...240 V	230...240 V	3	212338	EN 40-30	GHE 342 1501 R0006		0.400	3
4 NO	230...240 V	230...240 V	3	133701	EN 40-40	GHE 342 1101 R0006		0.410	3

Ordering Information
EN series contactors

			EN20 (AC operated)	EN24 (AC/DC operated)	EN40 (AC/DC operated)
Technical details					
Main Pole - Utilization Characteristics according to IEC					
Rated operational voltage U_e max.		V	250	400	
Rated frequency limits		Hz	50/60	40...450	
Utilization category AC-1 / AC-7a					
for air temperature close to contactor < 55 °C	(NO)	A	20	24	40
Max. rated operational current Ie AC-1 / AC-7a	(NC)	A	20	24	30
Rated operational power AC-1					
230 V - 1 phase		kW	4	5.3	8.8
400 V - 3 phases		kW	-	16	26
Utilization category AC-3 / AC-7b for air temperature close to contactor < 55 °C					
Max. rated operational current Ie AC-3/AC-7b					
230 V - 1 phase		A	9	9	22
400 V - 3 phases		A	-	9	22
Rated operational power AC-3					
230 V - 1 phase		kW	1.1	2.2	5.5
400 V - 3 phases		kW	-	4	11
Rated making capacity AC-3			10 x I_e / AC-3		
Rated breaking capacity AC-3			8 x I_e / AC-3		
Short-circuit protection for contactors gG type fuse		A	20	35	63
Rated short-time withstand current I_{cw}		A	72		176
at 40 °C ambient temp., in free air, from a cold state	10 s				
Heat dissipation per pole Ie/AC-1/AC-7a		W	1	1.5	3
Max. electrical switching frequency					
- for AC-1 / AC-7a		cycles/h	300		
- for AC-3 / AC-7b		cycles/h	600		
Electrical durability					
- for AC-1 / AC-7a		cycles	150000	150000	150000
- for AC-3 / AC-7b		cycles	150000	500000	170000
Mechanical durability					
- millions of operating cycles			1.000.000		

Ordering Information
EH04... auxiliary contact block

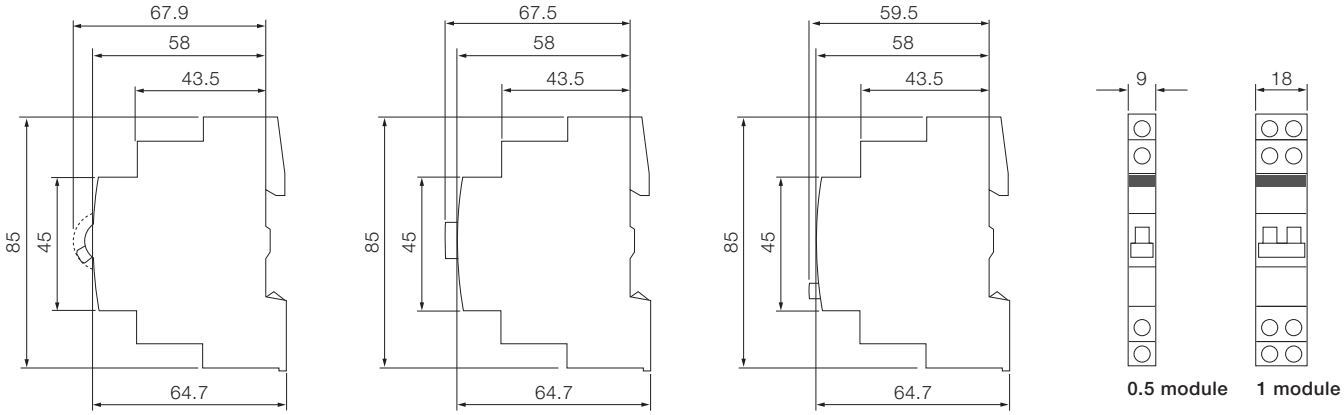
EH 04

Contactor Type	Contact blocks		N° module [17.5 mm]	Bbn 3471520 EAN	Order details Type code	Order code	Price	Weight 1 piece Kg	Pack unit
ESB/EN 24, 40, 63	2	-	0.5	084768	EH 04-20	GHE 340 1321 R0001		0.004	10
	1	1	0.5	084768	EH 04-11	GHE 340 1321 R0002		0.004	10

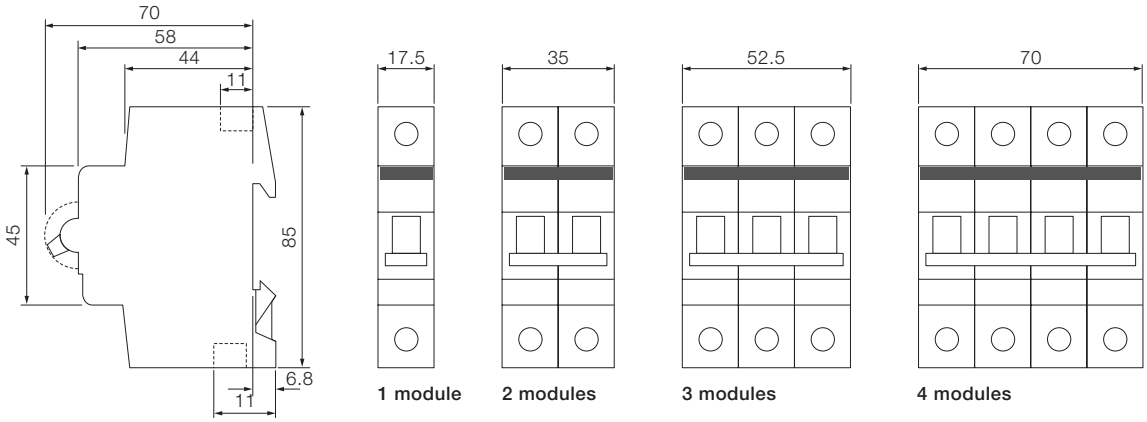
			ESB20 (AC operated)	ESB24 (AC/DC operated)	ESB40 (AC/DC operated)	ESB63 (AC/DC operated)
Technical details						
Rated operational voltage U_e max.		V	-	500		
Conventional free air thermal current I_{th} $\theta < 40$ °C		A	-	6		
Rated frequency limits		Hz	-	50/60		
Rated operational current I_e / AC-15 acc. to IEC 60947-5-1						
240 V	50/60 Hz	A	-	4		
415 V	50/60 Hz	A	-	3		
500 V	50/60 Hz	A	-	2		
Making capacity acc. to IEC 60947-5-1			-	11 x I_e AC-15		
Breaking capacity acc. to IEC 60947-5-1			-	11 x I_e AC-15		
Short-circuit protection gl type fuse		A	-	10		
Minimum switching capacity with failure rate acc. to IEC 60947-5-4		V/mA	-	17 / 5		
Heat dissipation per pole at 6 A		W	-	0.1		

Overall dimensions

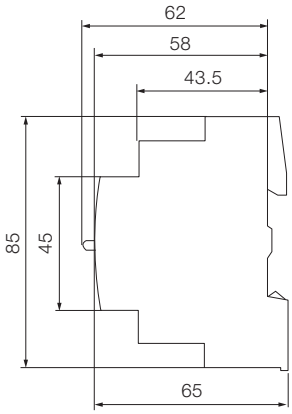
E 210 - Switches, pushbuttons and indicator lights



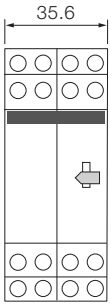
E 200



E 250

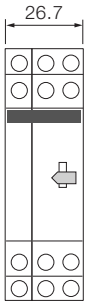


2 modules



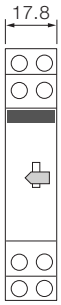
E 257-C003
E 257-C30

1,5 modules



E 257-C20
E 257-C002

1 module

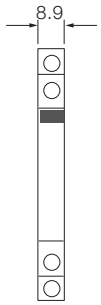


E 251, E 252,
E 256, E 256.1
E 256.2, E 257-C10

1 module

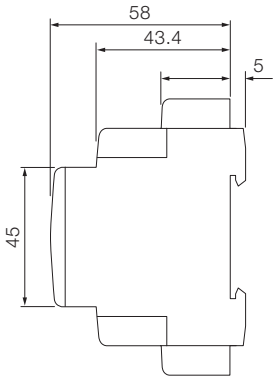
E 250 CM
E 250 CP
E 250 GM

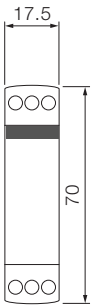
1/2 module



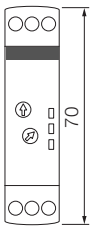
E 257-CM
E 250-H

E 260

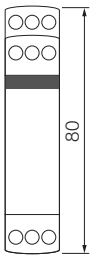




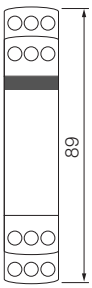
E 261
E 261 C



E 261 SRV

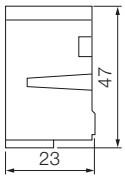


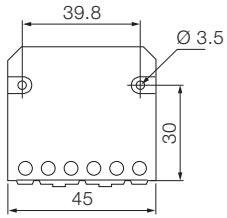
E 262
E 266



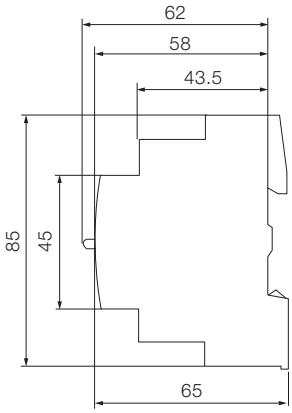
E 262 C
E 266 C

FLR

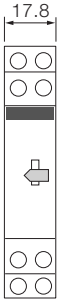




E 259

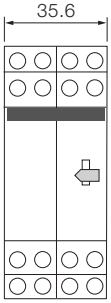


1 module



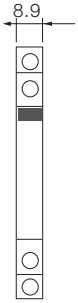
E 259 16-10, E 259 16-20,
E 259 16-11, E 259 16-19,
E 259 16-29,

2 modules



E 259 16-30, E 259 16-40,
E 259 16-39, E 259 16-49

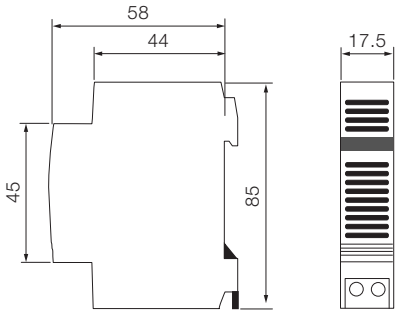
1/2 module



E 250-H

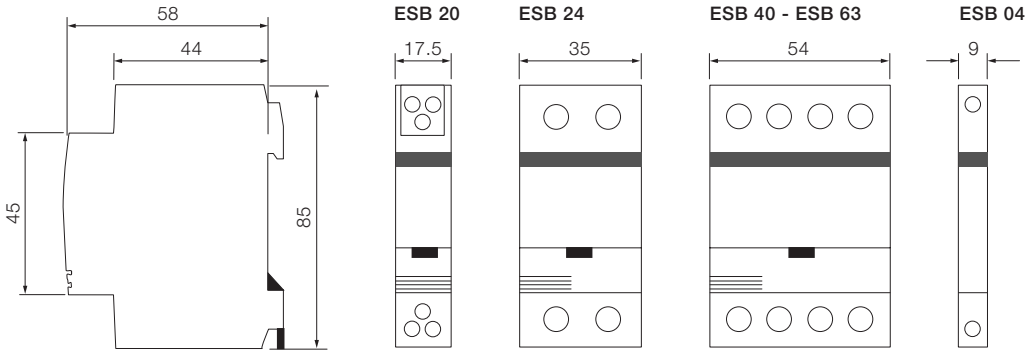
Overall dimensions

SM, RM



1 module

ESB/EN contactors



1 module | 2 modules | 3 modules

Comfort

Comfortable living, easy to manage
ABB solutions for home comfort

The basic idea behind a modern electrical installation is to adapt the system to the users' needs and not vice versa, providing simple operation, safety and energy efficiency. ABB products have all the necessary features to control homes through a flexible networking of solutions that make life easy.

Electronic components have always been used to improve the performance, increase comfort and save energy.
Even in domestic installations, loads must be protected and monitored to guarantee their correct behaviour in critical conditions. This is a fundamental aspect for the comfort of users. The ABB's portfolio of products devoted to improve the comfort is very complete.
The F2C-ARH-T autoreclosing unit for domestic and similar application periodically performs the auto test and reclosure of the associated residual current device (2-pole RCCBs up to 63 A - 30 mA / 100 mA), only after having checked that there are no effective faults in the system protected by the RCCB.
The ATT modules are GSM telephone actuators for remotely controlling electrical loads over the mobile phone network, which answer the installation requirements of a variety of application settings. Instructions and alarms can be sent via SMS message, free phone call ring, fax or e-mail according to need. Configuration can be accomplished by SMS messages or using the ATT-Tool software.

Modular devices in the load management devices category react automatically to variations of parameters and other events in the system to allow installation optimization. The priority switch is used in wiring systems where existing lead cross sections or the size of the power supply service box. The E 450 priority switches in particular disconnects the long-term load as long as the short-term consumer is switched on. Installed downstream of the main circuit-breaker, LSS1/2 load shedding switch compares the actual power consumption of the system to a preset maximum permitted value, and prevents tripping of the main circuit-breaker by sequentially switching off a maximum of two non-prioritary loads (NPL1 and NPL2) when the preset threshold is exceeded. A green LED indicates the presence of the supply voltage, and two red LEDs indicate the load OFF conditions. At preset time intervals, the device automatically attempts to reconnect the previously disabled loads.
E 235 mains disconnection relays – Bioswitch - constant exposure of electrical interference fields originating from live conductors - as is the case e.g. in bedrooms – which may impair the well-being of people.

LEE 230 extractable power failure signalling lamp is an automatic electronic lamp that can be installed in any modular socket or wiring accessory socket conforming to the German VDE Schuko standard, to the Italian standard P11 10A, or to the 10/16 A Italian dual standard. The device functions both as a power failure signalling lamp and as a lighting device, to be used for example during maintenance activities or when seeking faults in the panel.

F2C-ARH and F2C-ARH-T
The details make the difference
The characteristics and assets of an efficient and reliable product

Supply cables of the device

Plastic prong to couple Greenlight to the residual current circuit-breaker

Coupler that connects to the operating lever of the RCCB

Slide that activates/ de-activates the automatic resetting function

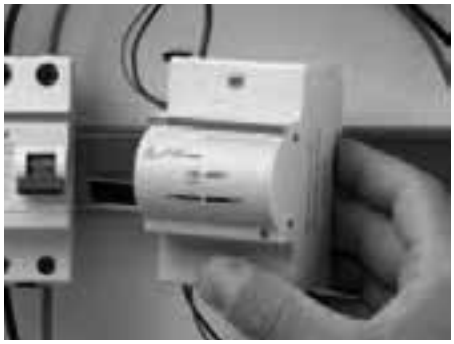
Wiring cables of the device

Autotest programming key (only on F2C-ARH-T)

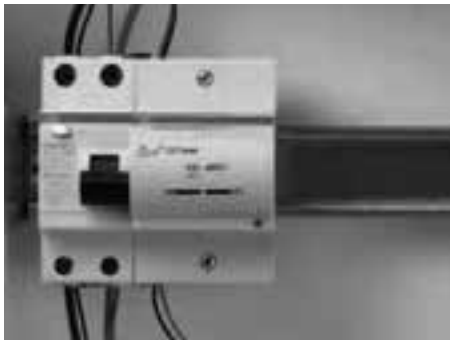
Selector switch for activating the RCCB's automatic test function (only on F2C-ARH-T)

Indicator LED

Withdrawable terminals to connect the auxiliary signalling contact

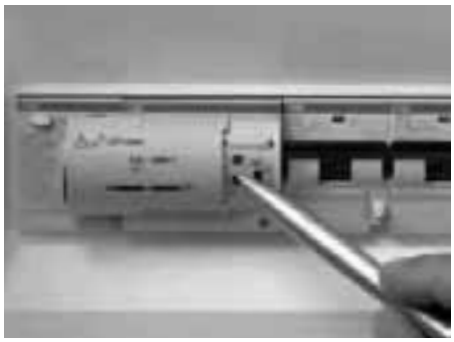


Wiring
Greenlight auto-reclosing units are supplied already wired and ready to be installed and connected. You only need a screwdriver to turn the hooks that fasten it to the circuit-breaker and to tighten the terminals. The four wires of the Greenlight device are specially designed to be simply and reliably connected to the rear terminals of FH202 30 mA / 100 mA residual current circuit-breaker.



Set-up
Just a few minutes for the assembly, connection and programming procedures: Greenlight can be activated within an exceptionally short time. The operations are so simple that there is absolutely no room for error and the first autotest (available on F2C-ARHT), already included in the start-up procedure, allows you to immediately make sure that the system is working in an efficient and reliable way.

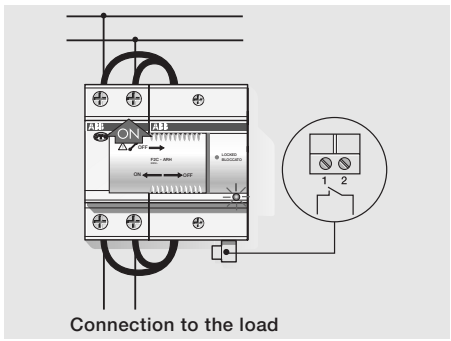
Autotest programming (only on F2C-ARH-T)
Once Greenlight with autotest has been assembled and connected, just power it, close the residual current circuit-breaker and move the slide towards the left to free the programming button. The red LED alongside the programming button will flash to indicate that the autotest needs to be programmed. Keep pressed the programming button for three seconds. The red LED light will become fixed and the device will perform the first test. The test will be repeated, at the same time of day, every six months.



Delay time (only on F2C-ARH-T)
A simple programming system allows you to delay the time at which the test is performed in relation to the time when the autotest system was activated. A five, ten and fifteen hour delay can be obtained by releasing and pressing the programming key once, twice or three times when the red LED light has become fixed after having been pressed the first time.

Colour	State	Auxiliary contact	Meaning
None	Off	Open	Greenlight not powered
Green	Flashing	Open	Greenlight powered and auto-reclosing not activated
Green	Fixed	Open	Auto-reclosing activated
Red	Flashing	Open	Inspection of the installation after the RCCB has tripped
Red	Fixed	Closed	Greenlight has blocked owing to a permanent fault in the line
Orange (only on F2C-ARH-T)	Fixed	Open	The RCCB automatic test has given a negative result: call an electrician.

LED light
The multicolored LED on the front of the Greenlight device informs the user at a glance when the system is in the normal condition: if the reclosing system is activated, if the system is being tested because the residual current circuit-breaker has tripped, if the device is in the blocked status owing to a permanent fault in the installation and, lastly, if the residual current circuit-breaker has not passed the automatic test (only F2C-ARH-T) and maintenance work by an electrician is required in order to inspect.



Connection to the load

Signalling contacts
A signalling contact allows the device to signal faults by remote control.
For example, in combination with a telephone actuator (ATT-22) it can transmit information to a mobile phone to warn the user that the residual current circuit-breaker has tripped and that Greenlight has failed its reclosing because it has detected a fault in the installation.

Ordering Information
F2C-ARH, F2C-ARH-T

F2C-ARH

4

Description	N° module	Bbn 8012542	Order details			Weight 1 piece
	[17.5 mm]	EAN	Type code	Order code	Price	Kg
Auto-reclosing device for 30 mA 2P RCCBs	3	732433	F2C-ARH	2CSF200992R0005		0.200
Auto-reclosing device for 100 mA 2P RCCBs	3	658535	F2C-ARH100	2CSF200990R0005		0.200
Auto-reclosing device with automatic test for 30 mA 2P RCCBs	3	733232	F2C-ARH-T	2CSF200991R0005		0.200
Auto-reclosing device with automatic test for 100 mA 2P RCCBs	3	593836	F2C-ARH-T100	2CSF200989R0005		0.200

	F2C-ARH, F2C-ARH100	F2C-ARH-T, F2C-ARH-T100
Technical details		
Power supply	230 V a.c. (-15% / +10%)	230 V a.c. (-15% / +10%)
Number of automatic reclosing attempts	1	1
Reset time for counter of automatic reclosing attempts	12 sec	12 sec
Power consumption during operation	(t<0.5s) 20VA max	(t<0.5s) 20VA max
Power consumption when idle	0.4W max	0.4W max
Number of operations	≤ 10,000	≤ 10,000
Operating temperature	-25 ... + 55 °C	-25 ... + 55 °C
Signalling contact cable section	≤ 2.5 mm^2	≤ 2.5 mm^2
Type of RCCB compatible	FH202-F202 30mA/100 mA (depending on version), up to 63A	FH202-F202 30mA /100 mA (depending on version), up to 63A
Locked state signalling contact (terminals 1-2)	1NO (change-over)	1NO (change-over)
Rated current of locked state contact	3A (250 V a.c.)	3A (250 V a.c.)
Autotest of the residual current circuit-breaker	NO	YES

Ordering Information
E 450 priority switches

E 451-5,7A

The priority switch is used in wiring systems where existing lead cross sections or the size of the power supply service box do not allow for simultaneous operation of two powerful loads (e.g. storage heating and flow-type heater).
The priority switch disconnects the long-term load (storage heating) for as long as the short-term consumer (flow-type heater) is switched on.
The coil of the priority switch is connected in series to the short-term load. When this load is switched on, the NC contact of the priority switch disconnects e.g. the heating system contactor.

Rated current range	Power loss	N° module	Bbn 4016779	Order details			Weight 1 piece	Pack unit
	W	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
6,7 ... 39 A	2.4	1	415903	E 451 - 5.7 A	2CDE160000R0901		0.1	10
6.7 ... 39 A	2.4	1	209502	E 452 - 5.7 A	2CDE160010R0901		0.1	10

	E 451-5.7	E 452-5.7
Technical details		
Operating coil		
Range of rated current	6.7 … 39 A	
equivalent to	1.5 … 9 kW at 230 V, 4.6 … 27 kW at 230/400 V	
Threshold current	3.1 … 5.3 A	
OFF delay (max.)	0 main half waves	2 main half waves
Max. continuous current	43 A	
Therm. continuous capacity at 40 °C/104 °F	5 W	
Contact assembly		
Control contact	1 NC contact	
Rated contact current at 250 V	1 A	
Contact material	solid silver	
Max. switching voltage	400 V	
Max. switching capacity	230 VA	
Max. switched current	1 A	
Max. inrush current peak	5 A	
Electr. service life	> 10^5 operations	
Mechanical service life	ca. 2 x 10^6 operations	
Max. electrical switching rate	ca. 1800 operations/hour	
ON duration	100 %	
Ambient temperature	– 20 °C/– 4 °F to + 40 °C/104 °F	
Response time	10 … 20 ms	
Release time	5 … 20 ms	≥ 20 ms
Test voltage contact/coil	2.5 kV	
Clearance and creepage distance	C/250 V AC cording to IEC 669-1-23	
Degree of protection	IP 40	
Protection against electric shock	according to DIN VDE 0106 Part 100 (BGV A2)	
Terminal contact	series coil up to 16 mm^2, control contact up to 2.5 mm^2	

Ordering Information
ATT GSM modules

ATT-22

4

The ATT modules are GSM telephone actuators for remotely controlling electrical loads over the mobile phone network, which answer the installation requirements of a variety of application settings.
In particular, the ATT-22 version consists of a control module with 2 outputs and 2 inputs for residential, services-sector and industrial installations, while the ATT-81 alarm module, with 8 inputs and one output, is suitable for status and alarm monitoring in industrial and services-sector installations.
Instructions and alarms can be sent via SMS message, free phone call ring, fax or e-mail according to need. Configuration can be accomplished by SMS messages or using the ATT-Tool software.
All the ATT modules are supplied with backup lithium battery, ATT-Tool programming software and PC connecting cable. In addition, the ATT-22E and ATT-81E models are equipped with a pre-wired external antenna – essential if the module is installed in locations that do not assure adequate GSM coverage, such as cellars, enclosed metal structures, etc.
The modules can be supplied with an ABB type TS 25/12-24 C modular transformer and are compatible with the GSM SIM cards of all mobile telephone operators.

Inputs	Outputs	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
		[17.5 mm]	EAN	Type code	Order code	Price	Kg	
2 analog or digital	2 NO	4	944904	ATT-22	2CSM322000R1371		0.200	1
8 digital	1 NO	4	945000	ATT-81	2CSM381000R1371		0.200	1
2 analog or digital	2 NO	4	083450	ATT-22E	2CSM208345R1371		0.200	1
8 digital	1 NO	4	083559	ATT-81E	2CSM208355R1371		0.200	1

			ATT-22
Technical details			
GSM module			Dual band EGSM900 and GSM1800 for data, sms, fax and voice applications. Full Type Approved conforming to ETSI GSM Phase 2+
Output power			Class 4 (2 W@900 MHz) Class 1 (1 W@1800 MHz)
Commands sent by			SMS, call rings, DTMF tones, GPRS connection
Incoming alarms			SMS, call rings, e-mail, fax
Inputs	digital		self-powered max. 20 V DC, 2 mA
	analog (only ATT-22)		input voltage 0...10 V input impedance < 10 Kohm / 100 nF sampling rate 90 Ksps
Outputs	relay		NO 4 A 250 V AC - max 2500 VA
	minimum load		100 mA, 12 V
GSM indicator LED	OFF		device not supplied
	STEADY ON		device under power not connected to mobile network, SIM pin code missing or incorrect
	SLOW BLINK		device under power, connected to mobile network
	FAST BLINK		communication in progress
Power supply		[V]	12 ±10% AC/DC
Power consumption	when transmitting	[W]	2.5
	in stand-by	[W]	0.4
Terminal section			2.5 mm^2
Temperature	ambient	[°C]	-20...55
	storage	[°C]	-30...85
Relative humidity	ambient		5...95% non condensing
	storage		5...95% only external condensation
Modules			4
Protection degree			IP40

Ordering Information
RAL overload relays

RAL6

4

Installed downstream of the main circuit-breaker in a single-phase system, they constantly compare the actual power consumption to the preset threshold. An acoustic alarm alerts that some appliances must be switched off to avoid tripping the main circuit-breaker whenever the preset threshold is exceeded. The device calibration is 3 kW.
RAL built in relay output contact allows the following functions to be implemented:
a) remote signalling (acoustic or lighting)
b) opening a divisional circuit-breaker to disable a non essential electrical appliance.
Function b) allows one or more appliances to be automatically switched off in order to keep the power consumption within the preset limit and avoid unwanted tripping of the current-limiting device installed outside the home (e.g. in the basement). RAL must be reset manually.

Adjustable range	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
kW	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
0/3	2	400509	RAL 3	2CSM111200R1301		0.200	6
0/6	2	400608	RAL 6	2CSM121200R1301		0.200	6

		RAL3	RAL6
Technical details			
Rated voltage U_n	[V]	AC 230	
Rated current I_n	[A]	18.3	27.5
Rated contact capacity I_n	[A]	12 cosϕ=1; 4 cosϕ=0.8	
Rated frequency	[Hz]	50	
Adjustment ranges	[A]	0...18.3	0…27.5
Power consumption	[W]	10	
Modules	[No.]	2	
Intervention delay		instantaneous	

Ordering Information
LSS1/2 load shedding switch

LSS1/2

Installed downstream of the main circuit-breaker, it compares the actual power consumption of the system to a preset maximum permitted value, and prevents tripping of the main circuit-breaker by sequentially switching off a maximum of two non-prioritary loads (NPL1 and NPL2) when the preset threshold is exceeded. A green LED indicates the presence of the supply voltage, and two red LEDs indicate the load OFF conditions. At preset time intervals, the device automatically attempts to reconnect the previously disabled loads.

N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
[17.5 mm]	EAN	Type code	Order code	Price	Kg	
5	274407	LSS1/2	2CSM112500R1311		0.400	1

4

			LSS1/2
Technical details			
Rated voltage U_n		[V]	a.c. 230
Rated capacity I_n		[A]	90
Rated contact capacity I_n NPL1 and NPL2		[A]	16 each (terminals 12 and 14)
Rated frequency		[Hz]	50/60
Regulating thresholds		[A]	5...30
			10...60
			15...90
Load reinsertion delay			5-7 min. (NPL1); 4-5, 50 min. (NPL2)
Load disinsertion delay			about 2 sec.
Indicators			1 green LED = supply voltage available
			2 red LEDs = loads switched off
Load OFF remote signalling		[A]	1 (terminals 11 and 13)
Terminals	Primary load		35 mm^2
	Non prioritary loads		10 mm^2
Power consumption		[W]	5
Modules		[No.]	5

Ordering Information
E 235 mains disconnection relays - Bioswitch

E 235-NFS

E 235-GLA

Constant exposure of electrical interference fields originating from live conductors - as is the case e.g. in bedrooms - may impair the well-being of people, experts say.
With the extra base load adapter E235-GLA, the mains disconnection relays can be switched on manually.
For the permanent installation of loads that switch on independently of the supply voltage, such as fluorescent lamps, a E235-GLE PTC base load element is available.

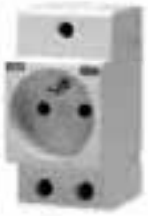
Description	N° module	Bbn 4016779	Order details			Weight 1 piece
	[17.5 mm]	EAN	Type code	Order code	Price	Kg
mains disconnection relay	1	571821	E 235-NFS	2CDE110000R1701		0.065
base load element	1	571814	E 235-GLE	2CDE100500R1711		0.001
base load adapter	1	571869	E 235-GLA	2CDE100510R1711		0.070

		E 235
Technical details		
Short circuit rupturing capacity		16 A/230 V AC
Rated frequency		50/60 Hz
Range of control voltage		0.9 to 1.1 Un
Load of filament lamps		2300 W
Fluorescent lamp load:	twin lamp circuit	100 W
	shunt compensated	56 W
	electronic ballast	max. 36 W, dependent on manufacturer
Induce load		6 A cosϕ = 0.6
Max. switching capacity (cosϕ 0.5)		3500 VA
Intrinsic consumption ca.		1 W
Control voltage		5 V AC
Adjustable making capacity		2 - 15 VA
Breaking capacity		0.66 x making capacity
ON delay		50 ms
OFF delay		ca. 3 sec.
Contact assembly		1 NO contact
Service life at rated load		> 100000 switching cycles
Ambient temperature		- 10 °C/14 °F to +45 °C/113 °F
Connection capacity (clamping terminal)		max 2.5 mm^2

Ordering Information
Socket Outlets

M1175

M1173



M1174

N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
[17.5 mm]	EAN	Type code	Order code	Price	Kg	
German Shuko standard modular sockets						
2.5	027850	M1175	2CSM210000R0721		0.120	4
Italian P30 standard modular sockets						
2.5	004103	M1173	2CSM110000R0701		0.120	4
French standard modular sockets						
2.5	006602	M1174	2CSM110000R0711		0.120	4

4

			M1175	M1174	M1173
Technical details					
Rated voltage U_n		[V]	250 AC		
Rated current I_n		[A]	16 (M1170, M1173, M1174, M1175),		
Rated frequency		[Hz]	50/60		
Power loss		[W]	0,6		
Modules		[No.]	2.5		
Safety shutters			yes, on entire range		
Terminal type			positive safety		
Cable section (ø min./max.)		[mm^2]	2.5 / 16		
Tightening torque		[Nm]	1.2		
Temperature	storage	[°C]	-40 … +70		
	operating	[°C]	-25 … +35		
Protection degree			IP20		
Reference standards			DIN VDE 0620-1	NF C 61 303	CEI 23-50
Approvals			VDE, GOST	LCIE, CEBEC, GOST	IMQ, GOST

Ordering Information
LEE 230 extractable power failure signalling lamp

LEE 230

The LEE 230 lamp is an automatic electronic lamp that can be installed in any modular socket or wiring accessory socket conforming to the German VDE Schuko standard (e.g. ABB M1173 or M1175), to the Italian standard P11 10A, or to the 10/16 A italian dual standard.
The device functions both as a power failure signalling lamp and as a lighting device, to be used for example during maintenance activities or when seeking faults in the panel.

Pack	N° module	Bbn 8012542	Order details			Weight 1 piece	Pack unit
	[17.5 mm]	EAN	Type code	Order code	Price	Kg	
Blister	-	507406	LEE 230	2CSM111000R1361		0.100	1

4

		LEE 230
Technical details		
2P 10 A plug		distance between pins 19 mm, pin ø 4 mm
Supply	[V]	230 AC, 50-60 Hz
Recharge time	[h]	24
Endurance	[h]	3
Lighting level	[mcd]	3000
Operating temperature	[°C]	0…+45
Min. life cycle		5 years (battery)

Additional technical features

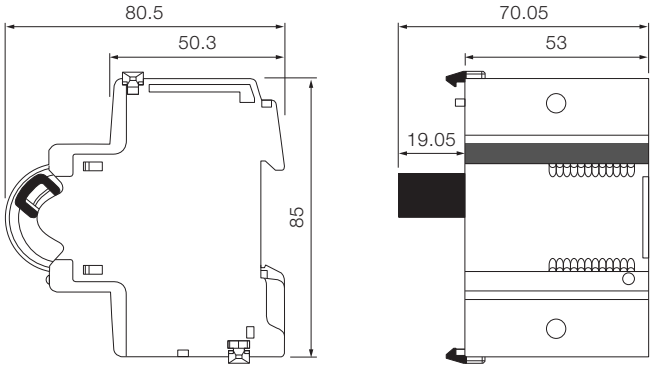
LEE-230 lamp automatically switches on when the voltage fails; the built-in rechargeable battery guarantees the supply.
It is particularly useful thanks to its construction and functional characteristics:
- it can be extracted from the socket and used as a torch with ON-OFF button on its frontal side
- when necessary it can work with standard sockets
- it can be moved when it is needed
- it has a long operation endurance, up to three hours
- it is ready to use, it does not require installation
- with a screw (ø 3.5 mm, L 16 mm) it is possible to fix it preventing the extraction from the M1173 ABB sockets with central hole
- the projecting part of the Schuko profile is very small (8 mm).

The two LEDs placed on the frontal side of the lamp indicate its operation condition:
- the red LED indicates the recharge activity and that, in the case of a network voltage back-out, the lamp will remain off
- the green LED indicates the recharge activity and that, in the case of a network voltage black-out, the lamp will switch on (it will automatically switch off when the voltage returns).

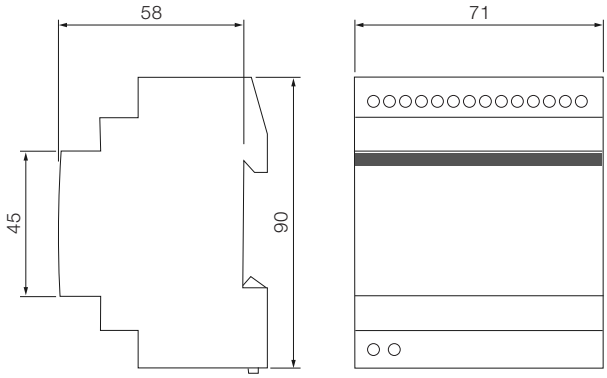
By pushing the frontal pushbutton it is possible to change the status; if you do not use the lamp for a prolonged time it is suggested to set the first condition in order to preserve the battery life.

Overall dimensions

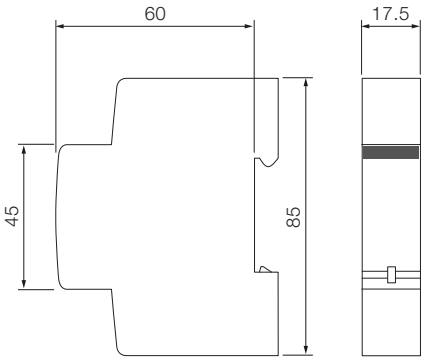
F2C-ARH, F2C-ARH-T



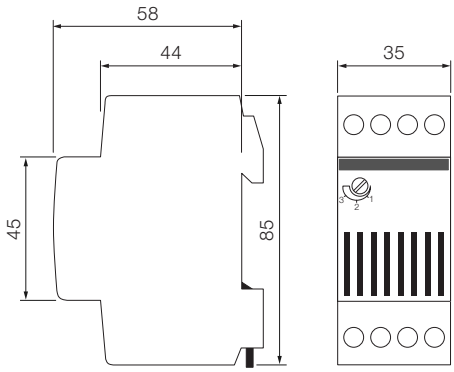
ATT



E 450

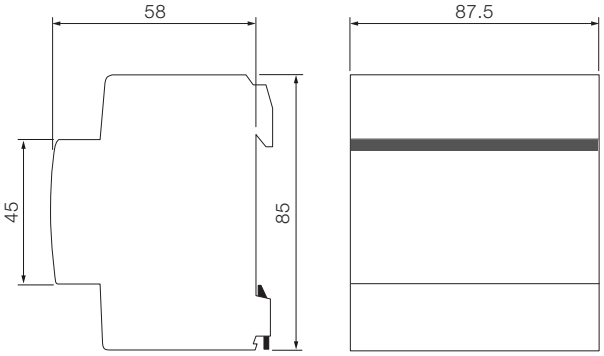


RAL



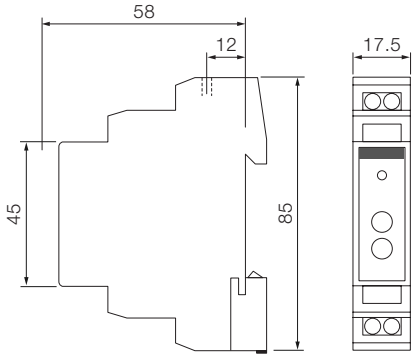
2 modules

LSS1/2



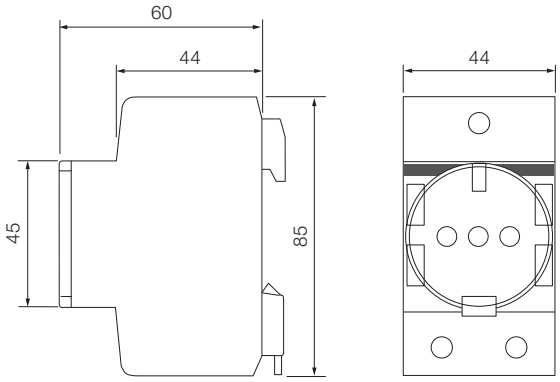
5 modules

E 235



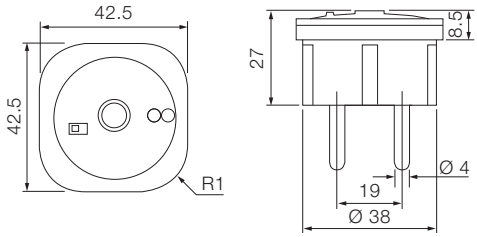
Overall dimensions

M1175, M1174, M1173 sockets



2.5 modules

LEE 230



Elérhetőségeink

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