

Electrical installation solutions for buildings

Command and signaling

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The details make the difference

Switch disconnecter SD 200

9

Patented twin terminals with captive screws:
highest comfort, safety and flexibility

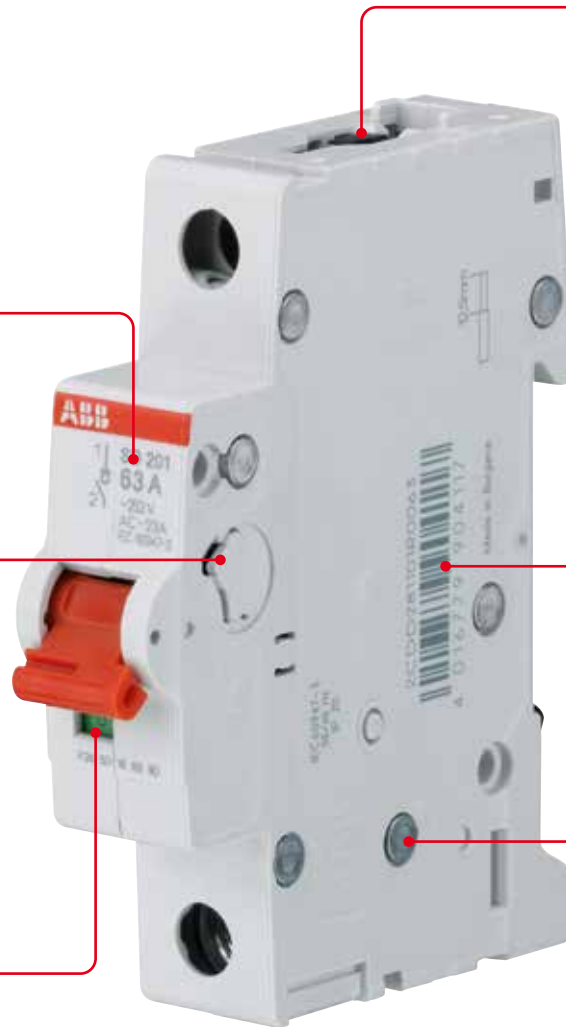
Easy product coding – easy identification:
basic technical information already integrated into the name

Fully compatible with all System pro M devices and accessories

Laser printing:
scratch and solvent resistant marking

Patented housing design:
environmental friendly and performance-optimized

Real contact position indication, directly connected to the moving contact, for more comfort and safety





Contact position indication

The switch disconnecter SD 200 is suited with a real contact position indication (real CPI). You can easily identify, if the SD 200 is in the ON or the OFF position – easy and safe maintenance work is possible.

The position of the toggle and the red/green display leaves no doubt about the present switching position, while the latter offers additional security, as the exact position of the inner contacts is always displayed. Thus, the device always supplies reliable information in the event of an error.



Wide range of accessories

SD 200 is fully compatible to the complete range of System pro M compact accessories like

- Auxiliary contacts, to be mounted on the left side, the right side or bottom fitting
- Shunt trips
- Undervoltage release
- Motor operating devices



PATENTED – Housing Design

By using state-of-the-art housing material, ABB is taking care of the environment. With the latest generation of halogen free thermoplastics for SD 200 it's possible to recycle the switch disconnectors completely without environmental pollution. The material works for the stability.



Laser printing

All labels on the SD 200, as the approvals on the dome, technical details and the product identification, are printed by a laser. The laser printing ensures a friction, scratch and solvent resistant marking on the switch disconnectors for easy identification in case of maintenance or replacements. For control and acceptance procedure it is important to see all markings also in the mounted position.



Highest performance

With a rated voltage of 253/440 V AC, a rated conditional short-circuit current of 25 kA, terminals with protection from misconnection, a "Real CPI" switching position display, as well as full compatibility with all MCB accessories, the SD 200 is unique in its field of application. SD 200 comply with IEC/EN 60947-3.



PATENTED – IP 20 finger safe terminals

The SD 200 are equipped with 35 mm² and 10 mm² cylinder lift twin terminals for challenging industrial use. Cross wiring can easily be realized by inserting the busbars into the rear terminal part and the incoming wires into the front part.

Command and signaling

Switch disconnectors selection table

The SD 200 and SHD 200 extend the proven System pro M compact® series by ranges of switch disconnectors which provides state-of-the-art safety and comfort. Both are available with 1 to 4 poles with rated currents from 16 to 63 A and provides disconnection properties according to IEC/EN 60947-3.

The SD 200 offers performance on a different level. With a rated voltage of 253/440 V AC, a rated conditional short-circuit current of 25 kA, terminals with protection from misconnection and a “Real CPI” contact position indication the range is unique in its field of application. In addition SD 200 is fully compatible with all MCB accessories.

The SHD 200 has a rated voltage of 240/415 V AC. A rated conditional short-circuit current of 10 kA enables a wide range of applications.

The laser printing and the design of the devices allow a consistent optical appearance in the distribution board.

The laser printing and the design of the devices allow a consistent optical appearance in the distribution board. A VDE/CCC/EAC and KEMA approval ensures a wide scope of applications. For technical differences between the ranges please refer to the selection table on the left page.



Command and signaling

SD 200 and SHD 200 switch disconnecter ranges



| Series | | SD 200 | SHD 200 | E 200 |
|--|-------------------------|---|---|---|
| Standards and approvals | | IEC/EN 60947-3 VDE/CCC/EAC/KEMA | IEC/EN 60947-3 VDE/CCC/EAC/KEMA | IEC/EN 60947-3 VDE/CCC/KEMA |
| Rated currents | 16...63 80...125 [A] | 16/25/32/40/50/63 – | 16/25/32/40/50/63 – | – 80/100/125 |
| Rated voltage | [V AC] | 253/440 | 240/415 | 240/415 |
| Short circuit withstand capacity | [kA] | 25 | 10 | 80...100 A : 25; 125 A : 6 |
| Utilization category | | AC-23A | AC-22A | AC-22A |
| Electrical lifetime | [Ops.] | $I_e < 32$ A: 20,000 (AC) $I_e \geq 32$ A: 10,000 (AC) | $I_e < 32$ A: 20,000 (AC) $I_e \geq 32$ A: 10,000 (AC) | $I_e < 100$ A: 1,500 (AC) $I_e \geq 125$ A: 1,000 (AC) |
| Terminal cross section | [mm ²] | 35 | 25 | 50 |
| Terminal | | Cylinder lift terminal | Cage terminal | Cage terminal |
| Two terminal openings for conductor and busbar | | Yes | No | No |
| Safety wire guard | | Yes | No | No |
| Contact position indication | | Marking on toggle (I ON/0 OFF) Real CPI (red ON/green OFF) | Marking on toggle (I ON/0 OFF) | Marking on toggle (I ON/0 OFF) |
| Combination with auxiliary elements | | | | |
| Auxiliary contacts | | Right side Left side Bottom side | No | Right side |
| Shunt trip | | Yes | No | No |
| Undervoltage release | | Yes | No | No |
| Motor operated remote control | | Yes | No | No |
| Padlock | | Yes | Yes | Yes |
| Removal without disassembling of the busbar | | Yes | No | Yes |

Command and signaling

SD 200 switch disconnecter



SD 201

Technical data

| Electrical data | |
|---|---|
| Standards | IEC/EN 60947-3 |
| Poles | 1P, 2P, 3P, 4P |
| Rated current I_e | 16 A, 25 A, 32 A, 40 A, 50 A, 63 A |
| Utilization category | AC-23A, DC-21A |
| Rated voltage U_e | 1P: 253 V AC, 60 V DC 2P: 440 V AC, 125 V DC 3...4P: 440 V AC |
| Insulation voltage U_i | 440 V AC |
| Max. power frequency recovery voltage U_{max} | 1P: 266 V AC, 63 V DC 2P: 462 V AC, 131 V DC 3...4P: 462 V AC |
| Min. operating voltage $U_{gmin.}$ | 12 V AC |
| Rated frequency f | 50/60 Hz, DC |
| Suitable for isolation | Yes |
| Rated conditional short-circuit current | 25 kA in series with NH 00 \leq 63 A gG |
| Overtoltage category | III |
| Pollution degree | 3 |
| Rated impulse withstand voltage $U_{imp.}$ (1.2/50 μ s) | 4 kV (test voltage 6.2 kV at sea level; 5 kV at 2,000 m) |
| Dielectric test voltage | 2 kV (50/60 Hz, 1 min.) |
| Mechanical data | |
| Housing | Insulation group I, RAL 7035 |
| Toggle | Insulation group II, red, sealable |
| Contact position indication | Marking on toggle, I ON / 0 OFF Real CPI (green OFF/red ON) |
| Protection degree acc. to EN 60529 | IP20 / IP40 in enclosure with cover |
| Electrical endurance | $I_e < 32$ A: 20,000 ops. (AC), 1,500 ops. (DC) $I_e \geq 32$ A: 10,000 ops. (AC), 1,500 ops. (DC) |
| Mechanical endurance | 20,000 ops. |
| Shock resistance acc. to IEC/EN 60068-2-27 | 25g, 2 shocks, 13 ms |
| Vibration resistance acc. to IEC/EN 60068-2-6 | 5g, 20 cycles at 5...150...5 Hz with load $0.8 I_n$ |
| Environmental conditions (damp heat cyclic) acc. to IEC/EN 60068-2-30 | 28 cycles with 55 °C/90-96% and 25 °C/95-100% [°C/RH] |
| Ambient temperature | -25 ... +55 °C |
| Storage temperature | -40 ... +70 °C |
| Installation | |
| Terminal | Cylinder lift terminal |
| Safety wire guard | Yes |
| Two terminal openings for conductor and busbar | Yes |
| Cross-section of conductors | 35 mm² |
| Cross-section of busbars | 10 mm² |
| Torque | 2.8 Nm |
| Screwdriver | No. 2 Pozidriv |
| Mounting | On DIN rail 35 mm acc. to EN 60715 by fast clip |
| Mounting position | Optional |
| Removal without disassembling of the busbar | Yes |
| Supply | Optional |

Command and signaling

SD 200 switch disconnecter

| Dimensions and weight | |
|--|------------------------------------|
| Mounting dimensions acc. to DIN 43880 | Mounting dimension 1 |
| Pole dimensions (H x D x W) | 88 x 69 x 17.5 mm |
| Pole weight | Approx. 85 g |
| Combination with auxiliary elements | |
| Auxiliary contact | Yes |
| Signal/auxiliary contact | Yes |
| Shunt trip | Yes |
| Undervoltage release | Yes |
| Motor operating device | Yes |
| Padlock | Yes |
| Approvals | |
| | CE and RoHS-conform |
| | Approvals: VDE/CCC/EAC/KEMA |

Command and signaling

SD 200 switch disconnecter



SD 201



SD 202



SD 203



SD 204

SD 200

Switch disconnecter acc. to IEC/EN 60947-3 for panel installation onto DIN rail (35 mm)

Mounting depth: 68 mm

Mounting width: per pole = 17.5 mm = 1 module

Colour: grey, RAL 7035

Colour of switch lever: red RAL 3000

Special features

- Isolating characteristics acc. to IEC/EN 60947-3
- Clear contact position indication in red/green ("Real CPI")
- Highest performance at an increased voltage level: 25 kA conditional short-circuit current at $U_e = 253/440$ V AC acc. to IEC/EN 60947-3
- Protection degree IP20 = finger safe
- 35 mm² cylinder lift terminal with 2 terminal openings for two wires or one wire and one busbar for cross wiring
- Bottom fixed auxiliary contact as accessory for a space saving installation or upgrade of existing assemblies without additional mounting width
- Consistent design to other System pro M DIN rail products
- Cross wiring with MCBs or RCDs using busbars PS
- Durable device identification due to laser labeling
- Captive screws
- Compatibility with all MCB accessories
- Approved acc. to IEC/EN 60947-3 for international use

Ordering details

Rated current: 16 A

| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
|-------|---------------|-------------|---------------|-----------------|---------|----------------|-----------|
| | | | V AC | EAN | | | |
| 1 | 253 | 904063 | SD201/16 | 2CDD281101R0016 | | 0.085 | 10 |
| 2 | 440 | 904124 | SD202/16 | 2CDD282101R0016 | | 0.170 | 5 |
| 3 | 440 | 904186 | SD203/16 | 2CDD283101R0016 | | 0.255 | 1 |
| 4 | 440 | 904247 | SD204/16 | 2CDD284101R0016 | | 0.340 | 1 |

Rated current: 25 A

| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
|-------|---------------|-------------|---------------|-----------------|---------|----------------|-----------|
| | | | V AC | EAN | | | |
| 1 | 253 | 904070 | SD201/25 | 2CDD281101R0025 | | 0.085 | 10 |
| 2 | 440 | 904131 | SD202/25 | 2CDD282101R0025 | | 0.170 | 5 |
| 3 | 440 | 904193 | SD203/25 | 2CDD283101R0025 | | 0.255 | 1 |
| 4 | 440 | 904254 | SD204/25 | 2CDD284101R0025 | | 0.340 | 1 |

Rated current: 32 A

| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
|-------|---------------|-------------|---------------|-----------------|---------|----------------|-----------|
| | | | V AC | EAN | | | |
| 1 | 253 | 904087 | SD201/32 | 2CDD281101R0032 | | 0.085 | 10 |
| 2 | 440 | 904148 | SD202/32 | 2CDD282101R0032 | | 0.170 | 5 |
| 3 | 440 | 904209 | SD203/32 | 2CDD283101R0032 | | 0.255 | 1 |
| 4 | 440 | 904261 | SD204/32 | 2CDD284101R0032 | | 0.340 | 1 |

Command and signaling

SD 200 switch disconnecter



SD 201

Ordering details

| Rated current: 40 A | | | | | | | |
|---------------------|---------------|----------------|---------------|-----------------|------------|-------------------|--------------|
| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | | | V AC | EAN | | | |
| 1 | 253 | 904094 | SD201/40 | 2CDD281101R0040 | | 0.085 | 10 |
| 2 | 440 | 904155 | SD202/40 | 2CDD282101R0040 | | 0.170 | 5 |
| 3 | 440 | 904216 | SD203/40 | 2CDD283101R0040 | | 0.255 | 1 |
| 4 | 440 | 904278 | SD204/40 | 2CDD284101R0040 | | 0.340 | 1 |



SD 202

| Rated current: 50 A | | | | | | | |
|---------------------|---------------|----------------|---------------|-----------------|------------|-------------------|--------------|
| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | | | V AC | EAN | | | |
| 1 | 253 | 904100 | SD201/50 | 2CDD281101R0050 | | 0.085 | 10 |
| 2 | 440 | 904162 | SD202/50 | 2CDD282101R0050 | | 0.170 | 5 |
| 3 | 440 | 904223 | SD203/50 | 2CDD283101R0050 | | 0.255 | 1 |
| 4 | 440 | 904285 | SD204/50 | 2CDD284101R0050 | | 0.340 | 1 |



SD 203

| Rated current: 63 A | | | | | | | |
|---------------------|---------------|----------------|---------------|-----------------|------------|-------------------|--------------|
| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | | | V AC | EAN | | | |
| 1 | 253 | 904117 | SD201/63 | 2CDD281101R0063 | | 0.085 | 10 |
| 2 | 440 | 904179 | SD202/63 | 2CDD282101R0063 | | 0.170 | 5 |
| 3 | 440 | 904230 | SD203/63 | 2CDD283101R0063 | | 0.255 | 1 |
| 4 | 440 | 904292 | SD204/63 | 2CDD284101R0063 | | 0.340 | 1 |



SD 204

Command and signaling

SHD 200 switch disconnecter



SHD 201

Technical data

| Electrical data | |
|---|---|
| Standards | IEC/EN 60947-3 |
| Poles | 1P, 2P, 3P, 4P |
| Rated current I_e | 16 A, 25 A, 32 A, 40 A, 50 A, 63 A |
| Utilization category | AC-22A, DC-21A |
| Rated voltage U_e | 1P: 240 V AC, 60 V DC 2P: 415 V AC, 125 V DC 3...4P: 415 V AC |
| Insulation voltage U_i | 440 V AC |
| Max. power frequency recovery voltage U_{max} | 1P: 252 V AC, 63 V DC 2P: 436 V AC, 131 V DC 3...4P: 436 V AC |
| Min. operating voltage $U_{gmin.}$ | 12 V AC |
| Rated frequency f | 50/60 Hz, DC |
| Suitable for isolation | Yes |
| Rated conditional short-circuit current | 10 kA in series with NH 00 \leq 63 A gG |
| Overtoltage category | III |
| Pollution degree | 3 |
| Rated impulse withstand voltage $U_{imp.}$ (1.2/50 μ s) | 4 kV (test voltage 6.2 kV at sea level; 5 kV at 2,000 m) |
| Dielectric test voltage | 2 kV (50/60 Hz, 1 min.) |
| Mechanical data | |
| Housing | Insulation group II, RAL 7035 |
| Toggle | Insulation group II, red, sealable |
| Contact position indication | Marking on toggle, I ON / 0 OFF |
| Protection degree acc. to EN 60529 | IP20 / IP40 in enclosure with cover |
| Electrical endurance | $I_e < 32$ A: 20,000 ops. (AC), 1,500 ops. (DC) $I_e \geq 32$ A: 10,000 ops. (AC), 1,500 ops. (DC) |
| Mechanical endurance | 20,000 ops. |
| Shock resistance acc. to IEC/EN 60068-2-27 | 25g, 2 shocks, 13 ms |
| Vibration resistance acc. to IEC/EN 60068-2-6 | 5g, 20 cycles at 5...150...5 Hz with load $0.8 I_n$ |
| Environmental conditions (damp heat cyclic) acc. to IEC/EN 60068-2-30 | 28 cycles with 55 °C/90-96% and 25 °C/95-100% [°C/RH] |
| Ambient temperature | -25 ... +55 °C |
| Storage temperature | -40 ... +70 °C |
| Installation | |
| Terminal | Cage terminal |
| Safety wire guard | No |
| Two terminal openings for conductor and busbar | No |
| Cross-section of conductors | 25 mm ² |
| Torque | 2.0 Nm |
| Screwdriver | No. 2 Pozidriv |
| Mounting | On DIN rail 35 mm acc. to EN 60715 by fast clip |
| Mounting position | Optional |
| Removal without disassembling of the busbar | No |
| Supply | Optional |

Command and signaling

SHD 200 switch disconnecter

| Dimensions and weight | |
|--|----------------------|
| Mounting dimensions acc. to DIN 43880 | Mounting dimension 1 |
| Pole dimensions (H x D x W) | 85 x 69 x 17.5 mm |
| Pole weight | Approx. 75 g |
| Combination with auxiliary elements | |
| Auxiliary contact | No |
| Signal/auxiliary contact | No |
| Shunt trip | No |
| Undervoltage release | No |
| Motor operating device | No |
| Padlock | Yes |
| Approvals | |
| CE and RoHS conform Approvals: VDE/CCC/EAC/KEMA | |

Command and signaling

SHD 200 switch disconnecter



SHD 201



SHD 202



SHD 203



SHD 204

SHD 200

Switch disconnecter acc. to IEC/EN 60947-3 for panel installation onto DIN rail (35 mm)

Mounting depth: 69 mm

Mounting width: per pole = 17.5 mm = 1 module

Colour: grey, RAL 7035

Colour of switch lever: red RAL 3000

Special features

- Isolating characteristics acc. to IEC/EN 60947-3
- Protection degree IP20 = finger safe
- 25 mm² cage terminal
- Consistent design to all other System pro M DIN rail products
- Cross wiring with MCBs or RCDs using busbars PS
- Durable device identification due to laser labeling
- Captive screws
- Locking device as accessory for unauthorized ON/OFF switching
- Approved acc. to IEC/EN 60947-3 for international use

Ordering details

| Rated current: 16 A | | | | | | | |
|---------------------|---------------|----------------|---------------|-----------------|------------|-------------------|--------------|
| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | | | V AC | EAN | | | |
| 1 | 240 | 904308 | SHD201/16 | 2CDD271111R0016 | | 0.075 | 10 |
| 2 | 415 | 904360 | SHD202/16 | 2CDD272111R0016 | | 0.150 | 5 |
| 3 | 415 | 904421 | SHD203/16 | 2CDD273111R0016 | | 0.225 | 1 |
| 4 | 415 | 904483 | SHD204/16 | 2CDD274111R0016 | | 0.300 | 1 |

| Rated current: 25 A | | | | | | | |
|---------------------|---------------|----------------|---------------|-----------------|------------|-------------------|--------------|
| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | | | V AC | EAN | | | |
| 1 | 240 | 904315 | SHD201/25 | 2CDD271111R0025 | | 0.075 | 10 |
| 2 | 415 | 904377 | SHD202/25 | 2CDD272111R0025 | | 0.150 | 5 |
| 3 | 415 | 904438 | SHD203/25 | 2CDD273111R0025 | | 0.225 | 1 |
| 4 | 415 | 904490 | SHD204/25 | 2CDD274111R0025 | | 0.300 | 1 |

| Rated current: 32 A | | | | | | | |
|---------------------|---------------|----------------|---------------|-----------------|------------|-------------------|--------------|
| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | | | V AC | EAN | | | |
| 1 | 240 | 904322 | SHD201/32 | 2CDD271111R0032 | | 0.075 | 10 |
| 2 | 415 | 904384 | SHD202/32 | 2CDD272111R0032 | | 0.150 | 5 |
| 3 | 415 | 904445 | SHD203/32 | 2CDD273111R0032 | | 0.225 | 1 |
| 4 | 415 | 904506 | SHD204/32 | 2CDD274111R0032 | | 0.300 | 1 |

Command and signaling

SHD 200 switch disconnecter



SHD 201

Ordering details

| Rated current: 40 A | | | | | | | |
|---------------------|---------------|-------------|---------------|-----------------|---------|----------------|-----------|
| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | V AC | EAN | Type code | Order code | piece | kg | pc. |
| 1 | 240 | 904339 | SHD201/40 | 2CDD271111R0040 | | 0.075 | 10 |
| 2 | 415 | 904391 | SHD202/40 | 2CDD272111R0040 | | 0.150 | 5 |
| 3 | 415 | 904452 | SHD203/40 | 2CDD273111R0040 | | 0.225 | 1 |
| 4 | 415 | 904513 | SHD204/40 | 2CDD274111R0040 | | 0.300 | 1 |



SHD 202

| Rated current: 50 A | | | | | | | |
|---------------------|---------------|-------------|---------------|-----------------|---------|----------------|-----------|
| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | V AC | EAN | Type code | Order code | piece | kg | pc. |
| 1 | 240 | 904346 | SHD201/50 | 2CDD271111R0050 | | 0.075 | 10 |
| 2 | 415 | 904407 | SHD202/50 | 2CDD272111R0050 | | 0.150 | 5 |
| 3 | 415 | 904469 | SHD203/50 | 2CDD273111R0050 | | 0.225 | 1 |
| 4 | 415 | 904520 | SHD204/50 | 2CDD274111R0050 | | 0.300 | 1 |



SHD 203

| Rated current: 63 A | | | | | | | |
|---------------------|---------------|-------------|---------------|-----------------|---------|----------------|-----------|
| Poles | Rated voltage | Bbn 4016779 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | V AC | EAN | Type code | Order code | piece | kg | pc. |
| 1 | 240 | 904353 | SHD201/63 | 2CDD271111R0063 | | 0.075 | 10 |
| 2 | 415 | 904414 | SHD202/63 | 2CDD272111R0063 | | 0.150 | 5 |
| 3 | 415 | 904476 | SHD203/63 | 2CDD273111R0063 | | 0.225 | 1 |
| 4 | 415 | 904537 | SHD204/63 | 2CDD274111R0063 | | 0.300 | 1 |



SHD 204

Command and signaling

E 200 switches



E 200

Technical data E200 80...125 A

| Electrical Data | |
|--|---|
| Standards | DIN EN 60947-3 (VDE0660-107); IEC/EN 60947-3 |
| Number of poles | 1P, 2P, 3P, 4P |
| Rated current I_e | 80...125 A |
| Rated voltage U_e | 240/415 V AC; 60 V DC |
| Rated frequency f | 50/60 Hz; DC |
| Utilization category | I_e 80 ... 125 A AC-22A (1..4-pole) DC-21B (1/2-pole) |
| | Acc. to DIN EN 60947-3 (VDE0660-107); IEC/EN 60947-3 |
| Protection fuse | NH 00 gG \leq Rated current E200 |
| Positive opening | Acc. to DIN VDE 0113 |
| Rated conditional short-circuit current | 80 ... 100 A (1- to 4-pole): 25 kA, 125 A (1- to 4-pole): 6 kA |
| Surge withstand capability U_{imp} | 4 kV (EN 60947-1) |
| Min. voltage $U_{min.}$ | 12 V AC/DC bei 0.1 VA |
| Min. contact loading | 24 V AC; 4 mA |
| Mechanical Data | |
| Housing | Grey, RAL 7035 |
| Toggle | Red (RAL 3000) / grey (RAL 7000), sealable |
| Contact position indication | On toggle (I ON / 0 OFF), on dome (I / 0) |
| Protection degree acc. to IEC/EN 60529 | IP10, IP40 in enclosure with cover |
| Electrical endurance | 80 ... 100 A: 1,500 ops., 125 A: 1,000 ops. |
| Mechanical endurance | 20,000 ops. |
| Environmental conditions acc. to IEC/EN 60068-2-30 | Constant climate 23/83, 40/93, 55/20 [°C/RH] Alternating climate 25/95 - 40/93 [°C/RH] |
| Ambient temperature | -25 ... +55 °C |
| Storage temperature | -40 ... +70 °C |
| Installation | |
| Terminal size | 2.5 to 50 mm ² |
| Cross-section busbar | \geq 16 mm ² |
| Tightening torque | 2.5 Nm |
| Screw driver | Nr. 2 Pozidriv |
| Mounting | On DIN rail 35 mm acc. to EN 60715 by fast clip |
| Mounting position | Any |
| Supply | Any |
| Dimensions and weight | |
| Mounting dimensions acc. to DIN 43880 | Mounting dimension 1 |
| Pole dimensions (H x D x W) | 85 x 70 x 17.5 mm |
| Pole weight | Ca. 95 g |
| Accessories | |
| Auxiliary contact | Max. 3x S2C-H 6R |
| Approvals | CE and RoHS conform Approvals: VDE, CCC, KEMA, EAC |

Command and signaling

E 200 switches



E 201

E 200 switches

Isolator for panel installation onto DIN rail acc. to DIN EN 60715

Mounting depth: 70 mm

Mounting width: per pole = 17.5 mm = 1 module

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 accessory for unauthorized ON/OFF
- Approval: VDE, CCC, KEMA, EAC

Ordering details

| Rated current: 80 A | | | | | | | | |
|---------------------|---------------|------------|-------------|---------------|-----------------|---------------|-------------------|---------------|
| Poles | Rated voltage | Power loss | Bbn 4016779 | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
| | V AC | W | EAN | Type code | Order code | | | |
| 1NO | 240 | 2.60 | 645737 | E201/80g | 2CDE281001R1080 | 0.095 | 10 | |
| 1NO | 240 | 2.60 | 645744 | E201/80r | 2CDE281001R0080 | 0.095 | 10 | |
| 2NO | 415 | 5.15 | 645911 | E202/80g | 2CDE282001R1080 | 0.190 | 5 | |
| 2NO | 415 | 5.15 | 645928 | E202/80r | 2CDE282001R0080 | 0.190 | 5 | |
| 3NO | 415 | 7.75 | 646093 | E203/80g | 2CDE283001R1080 | 0.290 | 3 | |
| 3NO | 415 | 7.75 | 646109 | E203/80r | 2CDE283001R0080 | 0.290 | 3 | |
| 4NO | 415 | 10.30 | 646277 | E204/80g | 2CDE284001R1080 | 0.390 | 2 | |
| 4NO | 415 | 10.30 | 646284 | E204/80r | 2CDE284001R0080 | 0.390 | 2 | |

| Rated current: 100 A | | | | | | | | |
|----------------------|---------------|------------|-------------|---------------|-----------------|---------------|-------------------|---------------|
| Poles | Rated voltage | Power loss | Bbn 4016779 | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
| | V AC | W | EAN | Type code | Order code | | | |
| 1NO | 240 | 3.95 | 645751 | E201/100g | 2CDE281001R1100 | 0.095 | 10 | |
| 1NO | 240 | 3.95 | 645738 | E201/100r | 2CDE281001R0100 | 0.095 | 10 | |
| 2NO | 415 | 7.90 | 645935 | E202/100g | 2CDE282001R1100 | 0.190 | 5 | |
| 2NO | 415 | 7.90 | 645942 | E202/100r | 2CDE282001R0100 | 0.190 | 5 | |
| 3NO | 415 | 11.85 | 646116 | E203/100g | 2CDE283001R1100 | 0.290 | 3 | |
| 3NO | 415 | 11.85 | 646123 | E203/100r | 2CDE283001R0100 | 0.290 | 3 | |
| 4NO | 415 | 15.80 | 646291 | E204/100g | 2CDE284001R1100 | 0.390 | 2 | |
| 4NO | 415 | 15.80 | 646307 | E204/100r | 2CDE284001R0100 | 0.390 | 2 | |

| Rated current: 125 A | | | | | | | | |
|----------------------|---------------|------------|-------------|---------------|-----------------|---------------|-------------------|---------------|
| Poles | Rated voltage | Power loss | Bbn 4016779 | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
| | V AC | W | EAN | Type code | Order code | | | |
| 1NO | 240 | 6.10 | 645775 | E201/125g | 2CDE281001R1125 | 0.095 | 10 | |
| 1NO | 240 | 6.10 | 645782 | E201/125r | 2CDE281001R0125 | 0.095 | 10 | |
| 2NO | 415 | 12.20 | 645959 | E202/125g | 2CDE282001R1125 | 0.190 | 5 | |
| 2NO | 415 | 12.20 | 645966 | E202/125r | 2CDE282001R0125 | 0.190 | 5 | |
| 3NO | 415 | 18.30 | 646130 | E203/125g | 2CDE283001R1125 | 0.33 | 3 | |
| 3NO | 415 | 18.30 | 646147 | E203/125r | 2CDE283001R0125 | 0.33 | 3 | |
| 4NO | 415 | 24.35 | 646314 | E204/125g | 2CDE284001R1125 | 0.44 | 2 | |
| 4NO | 415 | 24.35 | 646321 | E204/125r | 2CDE284001R0125 | 0.44 | 2 | |

Command and signaling

E 463/3, E 480/3 switches



E463/3-KB



E463/3-SL



SA 2

| Technical features | |
|-------------------------------------|---|
| Switching capacity | 1.25 In; 1.1 Un; $\cos\phi = 0.6$ according to DIN VDE 0632 |
| Rated voltage | 250/400 V a.c. |
| Connection cross section | 1 mm ² stranded wire/0.5 mm ² wire up to 25 mm ² |
| Pick-up torque | 3 Nm max. |
| Positive opening | according to DIN VDE 0113 |
| Ambient temperature | -25°C to +55°C |
| Storage temperature | -40°C to +70°C |
| Poles | 3 NO |
| Short-circuit withstanding capacity | 10 kA, 400 V a.c. |

| E 463/3-KB, E 480/3-KB, E 463/3-SL switches | | | | | | | | |
|---|------------|---------------|-------------|---------------|-----------------|---------|----------------|-----------|
| Rated current | Power loss | Rated voltage | Bbn 7612270 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| (per pole) | W | V AC | EAN | Type code | Order code | piece | kg | pc. |
| 63 | 5.4 | 250/400 | 932528 | E 463/3-KB | 2CCE160300R0131 | | 0.190 | 1 |
| 63 | 5.5 | 250/400 | 932535 | E 463/3-SL | 2CCE160301R0131 | | 0.195 | 1 |
| 80 | 9.9 | 250/400 | 932542 | E 480/3-KB | 2CCE180300R0141 | | 0.210 | 1 |

| Padlock for E 463/3-SL with 2 keys | | | | | | |
|------------------------------------|-------------|---------------|-----------------|---------|----------------|-----------|
| | Bbn 7612270 | Order details | | Price 1 | Weight 1 piece | Pack unit |
| | EAN | Type code | Order code | piece | kg | pc. |
| | 587704 | SA 2 | GJF1101903R0002 | | 0.020 | 1 |

Command and signaling

S800PV series 1500 switch disconnecter



S800PV-SP

| | | S802PV-M-H | S800PV-SD |
|---|-----------------|---|--|
| General Data | | | |
| Tripping characteristics | | none | none |
| Standards | | IEC / EN 60947-3 | IEC / EN 60947-3 and Annex D |
| Poles | | 2 (polarized) | 2 ... 4 |
| Rated current I_e | A | 32, 63, 100 | 32, 63, 125 |
| Rated insulation voltage U_i acc. to IEC/EN 60664-1 | V | DC 1500 | DC 1500 |
| Rated impulse withstand voltage $U_{imp.}$ (1.2/50 μ s) | kV | 8 | 8 |
| Overvoltage category | | III* | III* |
| Pollution degree | | 2 | 2 |
| Suitability for isolation | | yes | yes |
| Data acc. to IEC/EN 60947-3 | | | |
| Rated operational voltage U_e | V | DC 1000V: 2-pole | DC 800V: 2-pole DC 1200V: 3-Pole DC 1500V: 4-pole |
| Min. operating voltage | V | - | - |
| Rated short-term withstand current I_{cw} | kA | 1.5 | 1.5 |
| Rated short-circuit making capacity I_{cm} | kA | 0.5 | 0.5 |
| Utilisation category | | DC-21 A | DC-21 A, DC-PV2 |
| Electrical and Mechanical Endurance | ops. | 1500 electrical / 10000 mechanical | 32, 63 A: 1500 electrical / 10000 mechanical 125 A: 1000 electrical / 8000 mechanical |
| Mechanical Data | | | |
| Housing | | Material group I, RAL 7035 | Material group I, RAL 7035 |
| Toggle | | black, lockable | black, lockable |
| Classification acc. To NF F 126-101, NF F 16-102 | | - | - |
| Protection degree acc. to EN 60529 | | IP20; IP40 (actuating end only) | IP20; IP40 (actuating end only) |
| Shock resistance acc. to IEC/EN 60068-2-30 | | IEC 61373 Cat. 1 Class B, 5g / 30ms acc. To IEC 60068-27 Test Ea | IEC 61373 Cat. 1 Class B, 5g / 30ms acc. To IEC 60068-27 Test Ea |
| Vibration resistance acc. to IEC/EN 60068-2-6 | | IEC 60068-2-6 Test Fc; 2 - 13.2Hz/1mm 13.2 - 100Hz/0.7g with load 100% x I_e | IEC 60068-2-6 Test Fc; 2 - 13.2Hz/1mm 13.2 - 100Hz/0.7g with load 100% x I_e |
| Environmental conditions (damp heat) acc. to IEC/EN 60068-2-30 | $^{\circ}$ C/RH | 12 + 12 cycle with 55 $^{\circ}$ C/90 - 96% and 25 $^{\circ}$ C/95 - 100% | 12 + 12 cycle with 55 $^{\circ}$ C/90 - 96% and 25 $^{\circ}$ C/95 - 100% |
| Environmental conditions (dry heat) acc. to IEC/EN 60068-2-2 Test B | $^{\circ}$ C/RH | 16 hours 55 $^{\circ}$ C/2 hours 70 $^{\circ}$ C with damp heat 55% | 16 hours 55 $^{\circ}$ C/2 hours 70 $^{\circ}$ C with damp heat 55% |
| Ambient temperature | $^{\circ}$ C | -25 ... +60 | -25 ... +60 |
| Storage temperature | $^{\circ}$ C | -40 ... +70 | -40 ... +70 |
| Installation | | | |
| Terminal | | Failsafe cage or ringlug terminal | Failsafe cage or ringlug terminal |
| Connections (top/bottom) - C_u only | mm ² | 1 ... 50 stranded 1 ... 70 flexible | 1 ... 50 stranded 1 ... 70 flexible |
| Tightening torque | Nm | 3.5 | 3.5 |
| | in-lbs. | 31 | 31 |
| Screwdriver | | POZI 2 | POZI 2 |
| Mounting | | any | any |
| Mounting position | | any | any |
| Supply | | any (taking into account the polarization) | any (taking into account the polarization) |
| Dimensions and weight | | | |
| Pole dimensions (H x L x W) | mm | 95 x 26.5 x 82.5 | 95 x 26.5 x 82.5 |
| Pole weight | g | 240 | 240 |

*The pollution degree of the product, as defined in standard IEC 60947-1, is related to its micro environment, to which equipment is exposed. It may be different from that of the macro-environment. According to where the equipment is located, the pollution degree of the macro environment can be considered up to category IV, if protection is offered by means of such as an adequate enclosure or internal heating to prevent absorption or condensation of moisture.

Command and signaling

S800PV series 1500 switch disconnecter



S800PV-SD

Function: switch disconnecter for DC side isolation of PV systems.

Designed for PV installations of 1500 V DC.

Applications: Photovoltaic systems

Rated short-term withstand current, I_{cw} 1.5 kA

| I_{cw} | Rated current | Bbn 7612271 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|----------|---------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| kA | In A | EAN | Type code | Order code | | kg | pc. |
| 1.5 | 32 | 271958 | S802PV-SD32 | 2CCF019635R0001 | | 0.43 | 1 |
| 1.5 | 63 | 271934 | S802PV-SD63 | 2CCF019634R0001 | | 0.43 | 1 |
| 1.5 | 125 | 271972 | S802PV-SD125 | 2CCF019636R0001 | | 0.43 | 1 |



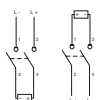
| I_{cw} | Rated current | Bbn 7612271 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|----------|---------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| kA | In A | EAN | Type code | Order code | | kg | pc. |
| 1.5 | 32 | 271996 | S803PV-SD32 | 2CCF019637R0001 | | 0.65 | 1 |
| 1.5 | 63 | 272016 | S803PV-SD63 | 2CCF019638R0001 | | 0.65 | 1 |
| 1.5 | 125 | 272030 | S803PV-SD125 | 2CCF019639R0001 | | 0.65 | 1 |



| I_{cw} | Rated current | Bbn 7612271 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|----------|---------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| kA | In A | EAN | Type code | Order code | | kg | pc. |
| 1.5 | 32 | 272054 | S804PV-SD32 | 2CCF019640R0001 | | 0.86 | 1 |
| 1.5 | 63 | 272078 | S804PV-SD63 | 2CCF019641R0001 | | 0.86 | 1 |
| 1.5 | 125 | 272092 | S804PV-SD125 | 2CCF019642R0001 | | 0.86 | 1 |

Command and signaling

S800PV series 1500 switch disconnecter



S800PV-M-H

Function: this polarized disconnecter is designed to meet the requirements for photovoltaic systems. Only 54 mm wide, voltage up to 1000 V d.c. and a rated current up to 100 A.

| Number of poles | Rated current In A | GTIN EAN 7612271 | Order details | | Weight 1 piece kg | Pack. unit |
|-----------------|--------------------|------------------|---------------|-----------------|-------------------|------------|
| | | | Type Code | Order code | | |
| 2 | 32 | 419035 | S802PV-M32-H | 2CCP247204R0001 | 0.43 | 1 |
| | 63 | 419042 | S802PV-M63-H | 2CCP247205R0001 | 0.43 | 1 |
| | 100 | 419301 | S802PV-M100-H | 2CCP247212R0001 | 0.43 | 1 |

Command and signaling

E 210 switches



E 210

On-off switches

| General | |
|--------------------------------------|--|
| Overall depth | 68 mm |
| Width | 0.5 or 1 module (9 or 18 mm) |
| Colour | grey, RAL 7035 |
| Climatic resistance to | IEC 60068-2-2 (dry heat) IEC 60068-2-30 (humid heat) IEC 60068-2-1 (low temperatures) |
| Ambient temperature | - 25°C to + 55°C |
| Storage temperature | - 40°C to + 70°C |
| Connection cross-section (Cu) | from 1 x 1 mm ² to 1 x 6 mm ² or 2 x 2.5 mm ² solid; from 1x 0.75 mm ² to 2 x 1.5 mm ² flexible with end ferrule or pin cable lug |
| Tightening torque | 1.2-1.5 Nm |
| Contacts | Double interrupting |
| On-off switches (E211; E211X) | |
| Short-circuit withstand capacity Inc | 3 kA; at 400 V cos j = 0.8 (with fusing ≤ 35 A / NH00) |
| Rated current In | 16 A, 25 A, 32 A |
| Rated voltage Un | |
| in accordance with EN | 250 VAC, 400 VAC |
| in accordance UL 508 | 240 VAC |
| Rated impulse withstand voltage Uimp | 6 kV |
| Lowest operating voltage | 24 VAC; 25 mA |
| Isolating features | to EN60669-2-4; IEC/EN 60947-3 |
| Utilization category | AC-22 A, DC-22 A acc. IEC/EN 60947-3 |
| LED voltage ranges | On-off switches E211X 115-250 VAC (Tolerance +/- 10%) |
| Frequency | 50/60 Hz |
| Sealable | in the On and Off positions |
| Standards | DIN EN 60669-1 *VDE 0632-1 DIN EN 60669-2-4 *VDE 0632-2-4 UL 508 |
| Approvals | VDE; UL; EAC; CCC |

Utilization category for E211 On-off switches (according to standard IEC 60947-3)

| Type | In | Utilization category | | |
|--------------|------|----------------------|---------------|----------------|
| | | DC-22 A | | AC-22 A |
| E211-16-... | 16 A | 50 VDC / 16 A | 200 VDC / 1 A | 400 VAC / 16 A |
| E211-25-... | 25 A | 50 VDC / 25 A | 200 VDC / 2 A | 400 VDC / 25 A |
| E211-32-...- | 32 A | 50 VDC / 32 A | 200 VDC / 3 A | 400 VDC / 32 A |

Command and signaling

E 210 switches

Change over, Group and control switches, pushbuttons and indicator lights

| Change over, Group and Control switches (E213; E214; E218) | |
|---|---|
| Rated current In | 16 A, 25 A |
| Rated voltage Un | |
| in accordance with EN | 250 VAC |
| in accordance UL 508 | 240 VAC |
| Lowest operating voltage | 24 VAC; 25 mA |
| Frequency | 50/60 Hz |
| Switches sealable | in the On and Off positions |
| Standards | DIN EN 60669-1 *VDE 0632-1 UL 508 |
| Approvals | VDE; UL; EAC; CCC |
| Pushbuttons without and with LED (E215; E217) | |
| Rated current In | 16 A |
| Rated voltage Un | |
| in accordance with EN | 250 VAC |
| in accordance UL 508 | 240 VAC |
| Lowest operating voltage | 24 VAC; 25 mA |
| LED voltage ranges | 12-48 VAC / DC; 115-250 VAC; 60-220 VDC (Tolerance +/- 10%) |
| Frequency | 50/60 Hz |
| Standards | DIN EN 60669-1 *VDE 0632-1 UL 508 |
| Approvals | VDE; UL; EAC; CCC |
| Indicator lights (E219) | |
| LED voltage ranges | 12-48 VAC / DC; 115-250 VAC; 60-220 VDC (Tolerance +/- 10%) |
| LED life time | 50.000 hours |
| Frequency | 50/60 Hz |
| Insulation voltage | 250 V |
| Rated impulse withstand voltage Uimp | 4 kV |
| Dissipated power | 0.47-1 W |
| Standards | DIN EN 62094-1 UL 508 |
| Approvals | VDE; UL; EAC; *1 |
| Indicator lights with 2 LEDs | |
| LED voltage ranges | 115-250 VAC; 12-48 VAC (tolerance +/- 10%) |
| Frequency | 50/60 Hz |
| Insulation voltage | 250 V |
| Rated impulse withstand voltage Uimp | 4 kV |
| Dissipated power | 0.8 W |
| Standards | DIN EN 62094-1 |
| Approvals | VDE; EAC; *1 |
| Indicator lights with 3 LEDs | |
| LED voltage ranges | 415/250 VAC (tolerance +/- 10%) |
| Frequency | 50/60 Hz |
| Insulation voltage | 250 V |
| Rated impulse withstand voltage Uimp | 4 kV |
| Dissipated power | 1.2 W |
| Standards | DIN EN 62094-1 |
| Approvals | VDE; EAC; *1 |

*1 = CCC approval not required

Command and signaling

E 210 switches



E 211-16-10



E211-16-20

These devices are specifically made for commanding loads and signaling 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 signaling electrical conditions in any installations (low-voltage area)

General features

- Space-saving through 9 mm 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

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 On-Off switches distinguish themselves through simple handling, easy mounting and optimal functionality.

| Rated current = 16 A | | | | | | | | | |
|----------------------|---------------|------------|-------|-------------|---------------|-----------------|---------------|----------------|-----------|
| Contacts | Rated voltage | Power loss | Width | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| | V AC | W | mm | EAN | Type code | Order code | kg | pc. | |
| 1 NO | 250 | 0.32 | 9 | 938575 | E211-16-10 | 2CCA703000R0001 | 0.035 | 10 | |
| 2 NO | 250/400 | 0.82 | 9 | 938582 | E211-16-20 | 2CCA703005R0001 | 0.045 | 10 | |
| 3 NO | 250/400 | 1.14 | 18 | 938599 | E211-16-30 | 2CCA703010R0001 | 0.080 | 10 | |
| 4 NO | 250/400 | 1.64 | 18 | 938605 | E211-16-40 | 2CCA703015R0001 | 0.090 | 10 | |

| Rated current = 25 A | | | | | | | | | |
|----------------------|---------------|------------|-------|-------------|---------------|-----------------|---------------|----------------|-----------|
| Contacts | Rated voltage | Power loss | Width | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| | V AC | W | mm | EAN | Type code | Order code | kg | pc. | |
| 1 NO | 250 | 0.75 | 9 | 938612 | E211-25-10 | 2CCA703001R0001 | 0.035 | 10 | |
| 2 NO | 250/400 | 1.95 | 9 | 938629 | E211-25-20 | 2CCA703006R0001 | 0.045 | 10 | |
| 3 NO | 250/400 | 2.70 | 18 | 938636 | E211-25-30 | 2CCA703011R0001 | 0.080 | 10 | |
| 4 NO | 250/400 | 3.90 | 18 | 938643 | E211-25-40 | 2CCA703016R0001 | 0.090 | 10 | |

| Rated current = 32 A | | | | | | | | | |
|----------------------|---------------|------------|-------|-------------|---------------|-----------------|---------------|----------------|-----------|
| Contacts | Rated voltage | Power loss | Width | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| | V AC | W | mm | EAN | Type code | Order code | kg | pc. | |
| 1 NO | 250 | 1.12 | 9 | 938650 | E211-32-10 | 2CCA703002R0001 | 0.035 | 10 | |
| 2 NO | 250/400 | 2.73 | 9 | 938667 | E211-32-20 | 2CCA703007R0001 | 0.045 | 10 | |
| 3 NO | 250/400 | 3.85 | 18 | 938674 | E211-32-30 | 2CCA703012R0001 | 0.080 | 10 | |
| 4 NO | 250/400 | 5.46 | 18 | 938681 | E211-32-40 | 2CCA703017R0001 | 0.090 | 10 | |

Command and signaling

E 210 switches



E211X-16-10

E 211X-... On-Off switches with yellow LED for contact indication

LED voltage 115-250 V AC

| Rated current = 16 A | | | | | | | | | | |
|----------------------|---------------|------------|------------|-------|--------|---------------|-----------------|---------|---------|-----------|
| Contacts | Rated voltage | Power loss | LED colour | Width | Bbn | Order details | | Price | Weight | Pack unit |
| | V AC | W | | mm | EAN | Type code | Order code | 1 piece | 1 piece | pc. |
| 1 NO | 250 | 0.50 | yellow | 9 | 938872 | E211X-16-10 | 2CCA703100R0001 | | 0.040 | 10 |
| 2 NO | 250/400 | 1.00 | yellow | 18 | 938889 | E211X-16-20 | 2CCA703110R0001 | | 0.050 | 10 |
| 3 NO | 250/400 | 1.50 | yellow | 18 | 938896 | E211X-16-30 | 2CCA703115R0001 | | 0.060 | 10 |



E211X-16-20

| Rated current = 25 A | | | | | | | | | | |
|----------------------|---------------|------------|------------|-------|--------|---------------|-----------------|---------|---------|-----------|
| Contacts | Rated voltage | Power loss | LED colour | Width | Bbn | Order details | | Price | Weight | Pack unit |
| | V AC | W | | mm | EAN | Type code | Order code | 1 piece | 1 piece | pc. |
| 1 NO | 250 | 1.15 | yellow | 9 | 938902 | E211X-25-10 | 2CCA703101R0001 | | 0.040 | 10 |
| 2 NO | 250/400 | 2.30 | yellow | 18 | 938919 | E211X-25-20 | 2CCA703111R0001 | | 0.050 | 10 |
| 3 NO | 250/400 | 3.45 | yellow | 18 | 938926 | E211X-25-30 | 2CCA703116R0001 | | 0.060 | 10 |

E 213-... Change over switches

The change-over switches distinguish themselves through simple handling, easy mounting and optimal functionality. Example applications include opening and closing of electrically operated flaps.



E213-16-001

| Rated current = 16 A | | | | | | | | | | |
|----------------------|---------------|------------|------------|-------|--------|---------------|-----------------|---------|---------|-----------|
| Contacts | Rated voltage | Power loss | LED colour | Width | Bbn | Order details | | Price | Weight | Pack unit |
| | V AC | W | | mm | EAN | Type code | Order code | 1 piece | 1 piece | pc. |
| 1 CO | 250 | 0.32 | - | 9 | 938698 | E213-16-001 | 2CCA703040R0001 | | 0.041 | 10 |
| 2 CO | 250 | 0.82 | - | 18 | 938704 | E213-16-002 | 2CCA703045R0001 | | 0.082 | 10 |



E 213-16-002

| Rated current = 25 A | | | | | | | | | | |
|----------------------|---------------|------------|------------|-------|--------|---------------|-----------------|---------|---------|-----------|
| Contacts | Rated voltage | Power loss | LED colour | Width | Bbn | Order details | | Price | Weight | Pack unit |
| | V AC | W | | mm | EAN | Type code | Order code | 1 piece | 1 piece | pc. |
| 1 CO | 250 | 0.40 | - | 9 | 938711 | E213-25-001 | 2CCA703041R0001 | | 0.041 | 10 |
| 2 CO | 250 | 0.88 | - | 18 | 938728 | E213-25-002 | 2CCA703046R0001 | | 0.082 | 10 |

Command and signaling

E 210 switches



E214-16-101

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

The 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 = 16 A | | | | | | | | | |
|----------------------|---------------|------------|-------|--------|---------------|-----------------|---------|---------|------|
| Contacts | Rated voltage | Power loss | Width | Bbn | Order details | | Price | Weight | Pack |
| | V AC | W | mm | EAN | Type code | Order code | 1 piece | 1 piece | unit |
| 1 CO | 250 | 0.32 | 9 | 938735 | E214-16-101 | 2CCA703025R0001 | | 0.041 | 10 |
| 2 CO | 250 | 0.82 | 18 | 938742 | E214-16-202 | 2CCA703030R0001 | | 0.082 | 10 |



E214-16-202

| Rated current = 25 A | | | | | | | | | |
|----------------------|---------------|------------|-------|--------|---------------|-----------------|---------|---------|------|
| Contacts | Rated voltage | Power loss | Width | Bbn | Order details | | Price | Weight | Pack |
| | V AC | W | mm | EAN | Type code | Order code | 1 piece | 1 piece | unit |
| 1 CO | 250 | 0.40 | 9 | 938759 | E214-25-101 | 2CCA703026R0001 | | 0.041 | 10 |
| 2 CO | 250 | 0.88 | 18 | 938766 | E214-25-202 | 2CCA703031R0001 | | 0.082 | 10 |

E 218-... Control switches

These devices can be used in distribution board for any control function. The control switches distinguish themselves through simple handling, easy mounting and optimal functionality.



E 218-16-11

| Rated current = 16 A | | | | | | | | | |
|----------------------|---------------|------------|-------|--------|---------------|-----------------|---------|---------|------|
| Contacts | Rated voltage | Power loss | Width | Bbn | Order details | | Price | Weight | Pack |
| | V AC | W | mm | EAN | Type code | Order code | 1 piece | 1 piece | unit |
| 1NO+1NC | 250 | 0.50 | 9 | 938773 | E218-16-11 | 2CCA703050R0001 | | 0.041 | 10 |
| 2NO+2NC | 250 | 1.00 | 18 | 938780 | E218-16-22 | 2CCA703060R0001 | | 0.082 | 10 |
| 3NO+1NC | 250 | 1.50 | 18 | 938797 | E218-16-31 | 2CCA703065R0001 | | 0.082 | 10 |



E 218-16-22

| Rated current = 25 A | | | | | | | | | |
|----------------------|---------------|------------|-------|--------|---------------|-----------------|---------|---------|------|
| Contacts | Rated voltage | Power loss | Width | Bbn | Order details | | Price | Weight | Pack |
| | V AC | W | mm | EAN | Type code | Order code | 1 piece | 1 piece | unit |
| 1NO+1NC | 250 | 0.75 | 9 | 938803 | E218-25-11 | 2CCA703051R0001 | | 0.041 | 10 |

Command and signaling

E 210 pushbuttons



E 215



E 217

E 215-... Pushbuttons (6 different button colours)

Pushbuttons without and with LED

These 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 60-220 V DC).

| Rated current = 16 A | | | | | | | | | | |
|----------------------|---------------|------------|---------------|----------|-------------|---------------|-----------------|---------------|----------------|-----------|
| Contacts | Rated voltage | Power loss | Button colour | Width mm | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| | V AC | W | | | | Type code | Order code | | | |
| 1NO+1NC | 250 | 0.50 | grey | 9 | 938810 | E215-16-11B | 2CCA703150R0001 | 0.046 | 10 | |
| 1NO+1NC | 250 | 0.50 | red | 9 | 938827 | E215-16-11C | 2CCA703151R0001 | 0.046 | 10 | |
| 1NO+1NC | 250 | 0.50 | green | 9 | 938834 | E215-16-11D | 2CCA703152R0001 | 0.046 | 10 | |
| 1NO+1NC | 250 | 0.50 | yellow | 9 | 938841 | E215-16-11E | 2CCA703153R0001 | 0.046 | 10 | |
| 1NO+1NC | 250 | 0.50 | black | 9 | 938858 | E215-16-11F | 2CCA703154R0001 | 0.046 | 10 | |
| 1NO+1NC | 250 | 0.50 | blue | 9 | 938865 | E215-16-11G | 2CCA703155R0001 | 0.046 | 10 | |

E 217-... Luminous Pushbuttons (5 different LED colours)

| LED Voltage range = 115-250 V AC | | | | | | | | | | |
|----------------------------------|---------------|------------|------------|----------|-------------|---------------|-----------------|---------------|----------------|-----------|
| Contacts | Rated voltage | Power loss | LED colour | Width mm | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| | V AC | W | | | | Type code | Order code | | | |
| 1 NO | 250 | 1.10 | white | 9 | 938988 | E217-16-10B | 2CCA703160R0001 | 0.050 | 10 | |
| 1 NO | 250 | 1.10 | red | 9 | 938995 | E217-16-10C | 2CCA703161R0001 | 0.050 | 10 | |
| 1 NO | 250 | 1.10 | green | 9 | 939008 | E217-16-10D | 2CCA703162R0001 | 0.050 | 10 | |
| 1 NO | 250 | 1.10 | yellow | 9 | 939015 | E217-16-10E | 2CCA703163R0001 | 0.050 | 10 | |
| 1 NO | 250 | 1.10 | blue | 9 | 939022 | E217-16-10G | 2CCA703164R0001 | 0.050 | 10 | |
| 1 NC | 250 | 1.10 | white | 9 | 939084 | E217-16-01B | 2CCA703250R0001 | 0.050 | 10 | |
| 1 NC | 250 | 1.10 | red | 9 | 939091 | E217-16-01C | 2CCA703251R0001 | 0.050 | 10 | |
| 1 NC | 250 | 1.10 | green | 9 | 939107 | E217-16-01D | 2CCA703252R0001 | 0.050 | 10 | |
| 1 NC | 250 | 1.10 | yellow | 9 | 939114 | E217-16-01E | 2CCA703253R0001 | 0.050 | 10 | |
| 1 NC | 250 | 1.10 | blue | 9 | 939121 | E217-16-01G | 2CCA703254R0001 | 0.050 | 10 | |

Command and signaling

E 210 pushbuttons



E 217

E 217-... Luminous Pushbuttons (5 different LED colours)

| LED Voltage range = 12-48 V AC/DC | | | | | | | | | | |
|-----------------------------------|---------------|------------|------------|-------|-------------|---------------|-----------------|---------------|----------------|-----------|
| Contacts | Rated voltage | Power loss | LED colour | Width | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| | V AC | W | | mm | EAN | Type code | Order code | | kg | pc. |
| 1 NO | 250 | 0.72 | white | 9 | 938933 | E217-16-10B48 | 2CCA703170R0001 | | 0.050 | 10 |
| 1 NO | 250 | 0.72 | red | 9 | 938940 | E217-16-10C48 | 2CCA703171R0001 | | 0.050 | 10 |
| 1 NO | 250 | 0.72 | green | 9 | 938957 | E217-16-10D48 | 2CCA703172R0001 | | 0.050 | 10 |
| 1 NO | 250 | 0.72 | yellow | 9 | 938964 | E217-16-10E48 | 2CCA703173R0001 | | 0.050 | 10 |
| 1 NO | 250 | 0.72 | blue | 9 | 938971 | E217-16-10G48 | 2CCA703174R0001 | | 0.050 | 10 |
| 1 NC | 250 | 0.72 | white | 9 | 939039 | E217-16-01B48 | 2CCA703260R0001 | | 0.050 | 10 |
| 1 NC | 250 | 0.72 | red | 9 | 939046 | E217-16-01C48 | 2CCA703261R0001 | | 0.050 | 10 |
| 1 NC | 250 | 0.72 | green | 9 | 939053 | E217-16-01D48 | 2CCA703262R0001 | | 0.050 | 10 |
| 1 NC | 250 | 0.72 | yellow | 9 | 939060 | E217-16-01E48 | 2CCA703263R0001 | | 0.050 | 10 |
| 1 NC | 250 | 0.72 | blue | 9 | 939077 | E217-16-01G48 | 2CCA703264R0001 | | 0.050 | 10 |

| LED Voltage range = 60-220 V DC | | | | | | | | | | |
|---------------------------------|---------------|------------|------------|-------|-------------|----------------|-----------------|---------------|----------------|-----------|
| Contacts | Rated voltage | Power loss | LED colour | Width | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| | V AC | W | | mm | EAN | Type code | Order code | | kg | pc. |
| 1 NO | 250 | 1.50 | white | 9 | 939138 | E217-16-10B220 | 2CCA703165R0001 | | 0.050 | 10 |
| 1 NO | 250 | 1.50 | red | 9 | 939145 | E217-16-10C220 | 2CCA703166R0001 | | 0.050 | 10 |
| 1 NO | 250 | 1.50 | green | 9 | 939152 | E217-16-10D220 | 2CCA703167R0001 | | 0.050 | 10 |
| 1 NO | 250 | 1.50 | yellow | 9 | 939169 | E217-16-10E220 | 2CCA703168R0001 | | 0.050 | 10 |
| 1 NO | 250 | 1.50 | blue | 9 | 939176 | E217-16-10G220 | 2CCA703169R0001 | | 0.050 | 10 |
| 1 NC | 250 | 1.50 | white | 9 | 939183 | E217-16-01B220 | 2CCA703255R0001 | | 0.050 | 10 |
| 1 NC | 250 | 1.50 | red | 9 | 939190 | E217-16-01C220 | 2CCA703256R0001 | | 0.050 | 10 |
| 1 NC | 250 | 1.50 | green | 9 | 939206 | E217-16-01D220 | 2CCA703257R0001 | | 0.050 | 10 |
| 1 NC | 250 | 1.50 | yellow | 9 | 939213 | E217-16-01E220 | 2CCA703258R0001 | | 0.050 | 10 |
| 1 NC | 250 | 1.50 | blue | 9 | 939220 | E217-16-01G220 | 2CCA703259R0001 | | 0.050 | 10 |

Command and signaling

E 210 indicator lights



E 219

E 219-... Indicator Lights with LED (5 different colours)

The indicator lights warrant a clear overview of the operating states of electrical equipment from one central location. The long useful life of LED technology promises maintenance-free operation for up to 50.000 hours.

For comparison: the incandescent bulbs previously used had a maximum operating operating time of 10.000 hours.

These products are available in 9 mm width (= 0.5 modules) and can be used for indicating any operational condition such as signaling 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).

| Single indicator light - LED Voltage range = 115-250 V AC | | | | | | | | |
|---|------------|-------|-------------|---------------|-----------------|---------------|----------------|-----------|
| Power loss | LED colour | Width | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| W | | mm | EAN | Type code | Order code | | kg | pc. |
| 0.47 | white | 9 | 939282 | E219-B | 2CCA703400R0001 | | 0.04 | 10 |
| 0.47 | red | 9 | 939299 | E219-C | 2CCA703401R0001 | | 0.04 | 10 |
| 0.47 | green | 9 | 939305 | E219-D | 2CCA703402R0001 | | 0.04 | 10 |
| 0.47 | yellow | 9 | 939312 | E219-E | 2CCA703403R0001 | | 0.04 | 10 |
| 0.47 | blue | 9 | 939329 | E219-G | 2CCA703404R0001 | | 0.04 | 10 |

| Single indicator light - LED Voltage range = 12-48 V AC/DC | | | | | | | | |
|--|------------|-------|-------------|---------------|-----------------|---------------|----------------|-----------|
| Power loss | LED colour | Width | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| W | | mm | EAN | Type code | Order code | | kg | pc. |
| 0.40 | white | 9 | 939237 | E219-B48 | 2CCA703420R0001 | | 0.04 | 10 |
| 0.40 | red | 9 | 939244 | E219-C48 | 2CCA703421R0001 | | 0.04 | 10 |
| 0.40 | green | 9 | 939251 | E219-D48 | 2CCA703422R0001 | | 0.04 | 10 |
| 0.40 | yellow | 9 | 939268 | E219-E48 | 2CCA703423R0001 | | 0.04 | 10 |
| 0.40 | blue | 9 | 939275 | E219-G48 | 2CCA703424R0001 | | 0.04 | 10 |

| Single indicator light - LED Voltage range = 60-220 V DC | | | | | | | | |
|--|------------|-------|-------------|---------------|-----------------|---------------|----------------|-----------|
| Power loss | LED colour | Width | Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| W | | mm | EAN | Type code | Order code | | kg | pc. |
| 1.00 | white | 9 | 939336 | E219-B220 | 2CCA703405R0001 | | 0.04 | 10 |
| 1.00 | red | 9 | 939343 | E219-C220 | 2CCA703406R0001 | | 0.04 | 10 |
| 1.00 | green | 9 | 939350 | E219-D220 | 2CCA703407R0001 | | 0.04 | 10 |
| 1.00 | yellow | 9 | 939367 | E219-E220 | 2CCA703408R0001 | | 0.04 | 10 |
| 1.00 | blue | 9 | 939374 | E219-G220 | 2CCA703409R0001 | | 0.04 | 10 |

Command and signaling

E 210 indicator lights



E 219-2CD



E 219-3CDE

| Double indicator light - LED Voltage range = 12-24 V AC | | | | | | | | |
|---|------------|-------|----------------|---------------|-----------------|------------------|-------------------|--------------|
| Power loss | LED colour | Width | Bbn 7612271 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| W | | mm | EAN | Type code | Order code | | kg | pc. |
| 0.8 | green, red | 9 | 413347 | E219-2CD48 | 2CCA703911R0001 | | 0.042 | 10 |

| Double indicator light - LED Voltage range = 115-230 V AC | | | | | | | | |
|---|------------|-------|----------------|---------------|-----------------|------------------|-------------------|--------------|
| Power loss | LED colour | Width | Bbn 7612271 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| W | | mm | EAN | Type code | Order code | | kg | pc. |
| 0.8 | green, red | 9 | 413330 | E219-2CD | 2CCA703910R0001 | | 0.042 | 10 |

| Triple indicator light - LED Voltage range = 415-230 V AC | | | | | | | | |
|---|---------------------|-------|----------------|---------------|-----------------|------------------|-------------------|--------------|
| Power loss | LED colour | Width | Bbn 7612271 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| W | | mm | EAN | Type code | Order code | | kg | pc. |
| 1.2 | red, red, red | 9 | 413309 | E219-3C | 2CCA703900R0001 | | 0.044 | 10 |
| 1.2 | green, green, green | 9 | 413316 | E219-3D | 2CCA703901R0001 | | 0.044 | 10 |
| 1.2 | red, yellow, green | 9 | 413323 | E219-3CDE | 2CCA703902R0001 | | 0.044 | 10 |

Command and signaling

E 210 accessories



E 210-DH



E 210-ASV9

Accessories for E 210 device series

Dummy housing for 9 mm wide units
The modular width of 18 mm must be complied with to use the devices in the SMISLINE socket system. The dummy housing is ready-made with two expanding connectors. Always snap on dummy housing on the left.

| Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|----------------|---------------|-----------------|------------------|-------------------|--------------|
| EAN | Type code | Order code | | kg | pc. |
| 404208 | E210-DH | 2CCA703480R0001 | | 0.18 | 10 |

| Padlock | | | | | |
|-----------------------------------|---------------|------------|------------------|-------------------|--------------|
| Bbn 7612270 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| EAN | Type code | Order code | | kg | pc. |
| to use for 9 and 18 mm wide units | 404215 | E210-ASV9 | 2CCA703648R0001 | 0.01 | 10 |

Command and signaling

Installation contactors



ABB's hum-free installation contactor designs now offer a wider range of ratings from 16 A to 100 A. Widely used in buildings for switching and controlling lighting, heating, ventilation, EV charging stations, motor and pumps, the installation contactors take noise reduction to a new level. With an innovative AC / DC coil design that eliminates hum, a broad selection of common accessories as well as manual and automatic versions, installation contactors offer peace of mind in noise-sensitive applications.



Optimum interface

Quiet and reliable in every application

ABB's hum-free contactors feature innovative AC / DC coils. The range covers ratings from 16 A to 100 A and offers accessories to suit customer requirements in every application. An integrated indicator makes diagnostics quicker and provides reliable information about the contactor's status at a glance.



Easy to install

Simple solution that saves time

Reduce installation time and stock levels, with a universal auxiliary contact block that can be attached to the contactors by hand. Installation contactors fit easily with ABB's System Pro M compact range, making them fully compatible with other modular DIN-rail components.



Global availability

Whatever you need, wherever you need it

Installation contactors are available in single and multi-packs to meet different customer needs and to optimize warehousing space. Every ABB product enjoys expert local support worldwide to make communication easier and delivery faster.

Command and signaling

Installation contactors

Features and benefits



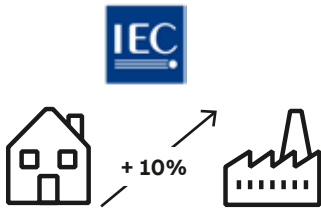
Hum-free operation

With an innovative AC / DC design that eliminates hum, the range meets the needs of applications demanding silent operation, for example hotel rooms and residential buildings.



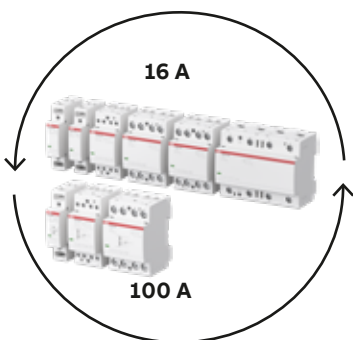
Single and multiple packaging

The right packaging for your needs- our products are available in a choice of different packaging and delivery quantities. This allows you to warehouse according to your needs and save up to 50% on your inventory.



Wide application range

The ESB installation contactors range meets both the industrial standard IEC 60947-4-1 and the household standard IEC 61095 as well as pollution degree class 3. Due to multiple certification and inherent robustness, the contactors can be used in 10% more applications in both residential and industrial settings.



Comprehensive solution

ABB's ESB and EN installation contactors range offers a complete solution from 16 A to 100 A, offering an answer to all customer needs from a single supplier.

With 16 A, 25 A and 100 A versions, tender specifications can be met with competitive pricing.

Command and signaling

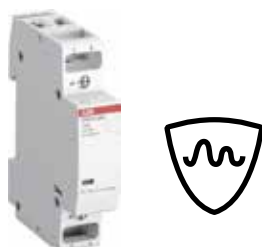
Installation contactors

Features and benefits



Save up to 15% space with group mounting

ESB16..N, ESB/EN20..N and ESB100..N can be group mounted. There is no need for a distance piece in between contactors, saving both valuable space in cabinets and money.



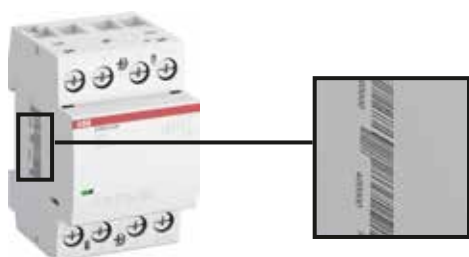
Built-in protective circuit

Protect the contactor without additional space-demanding components against remote lightning strikes and overvoltages.



Design in accordance with System Pro M

Contactors and accessories are designed according to System pro M range and ABB's modular DIN-rail components and fit in dedicated panels.



EAN-code for an easy identification

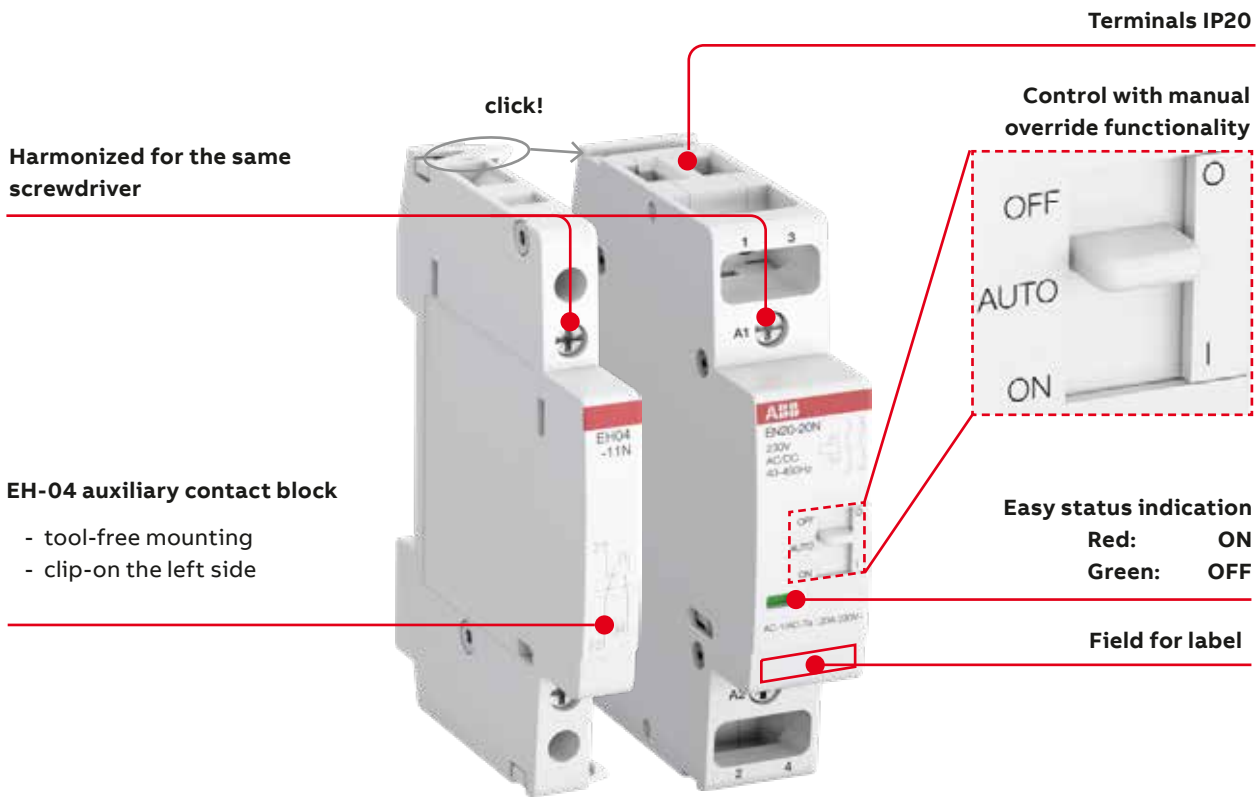
Just scan the EAN-code printed on the side of the devices and save up to 80% time identifying the product in your system. This way, handling and identifying your products in warehouse and cashier system is easy.

Command and signaling

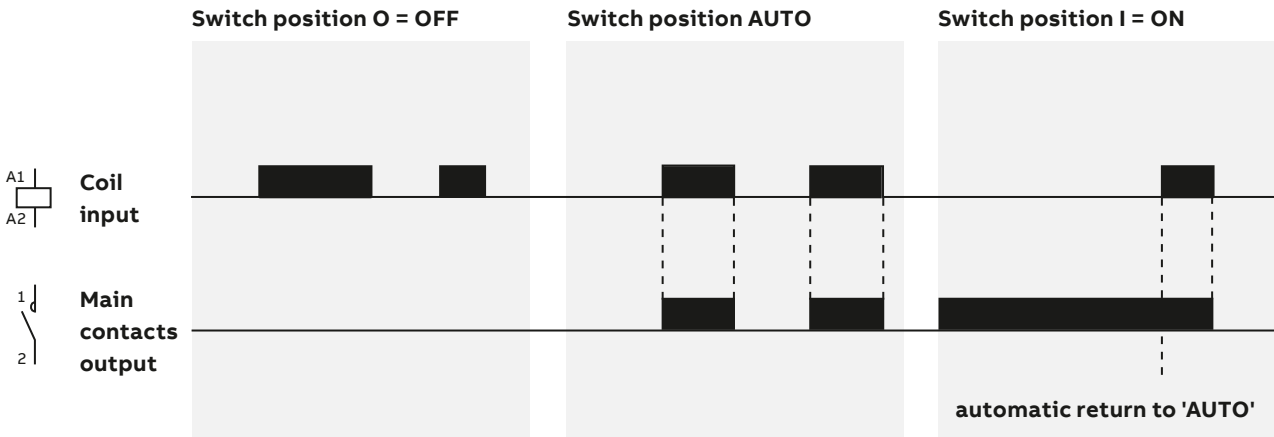
Installation contactors

Easy installation and maintenance

ABB's installation contactors come with many features that make installation and maintenance easier. The mechanical Indicator with green and red color for status indication ensures a quick diagnostic of the system. Also, some specialty types feature a manual override functionality with a toggle switch to control independently from control source. Accessories can be mounted tool-free on the contactor, for example auxiliaries, space holders as well as security and safety covers.



Operation mode EN-versions






Command and signaling

Installation contactors

Overview contactors



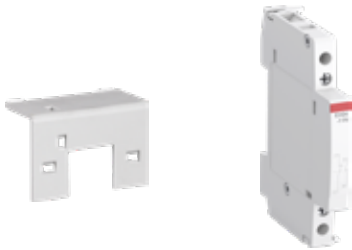
| Type | | ESB16..N | ESB20..N EN20..N | ESB25..N EN25..N | ESB40..N EN40..N | ESB63..N | ESB100..N |
|---|----------------------------|----------|---------------------|---------------------|---------------------|--------------|-----------|
| AC-1/AC-7a (A) | | 16 | 20 | 25 | 40 | 63 | 100 |
| Modular Width | | 1 | 1 | 2 | 3 | 3 | 3/6 |
| Accessories | | | | | | | |
| Auxiliary contact blocks  | 2 NO | EH04-20N | EH04-20N | EH04-20N | EH04-20N | EH04-20N | EH04-20N |
| | 1 NO + 1 NC | EH04-11N | EH04-11N | EH04-11N | EH04-11N | EH04-11N | EH04-11N |
| Distance piece  | up to 40 °C | - | - | - | - | - | - |
| | between 40 °C and 55 °C | - | - | ESB-DIS* | ESB-DIS* | ESB-DIS* | - |
| Covers  | | - | - | ESB-PLK24 | ESB-PLK40/63 | ESB-PLK40/63 | - |

*If several contactors are mounted adjacently and the duty time is longer than one hour, every second contactor needs a distance piece, Type ESB-DIS (1/2 module). This is not necessary at an ambient temperature ≤ 40 °C.

Command and signaling

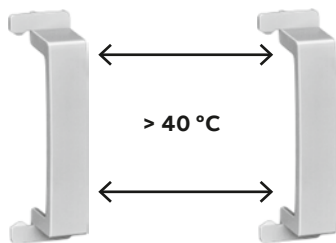
Installation contactors

Overview accessories



Tool-free accessories

Speed up installation and maintenance time by mounting accessories tool-free to the contactor. Auxiliaries, security safety covers and space holders are easily and quickly installed.



Distance pieces

If the ambient temperature in your control cabinet exceeds 40 °C and the duty time is longer than an hour, you need to use a distance piece between each second contactor for the ESB25..N to ESB63..N.



Sealing covers

Protect the security of your employees/ customers' installation with sealing covers. They are available in different sizes and can be clipped on easily.



Auxiliary contact blocks

ABB's new range of auxiliary contact blocks are mounted on the left side of the contactors. Simply clip them on - no tools required! Valuable inventory space can be saved with the new auxiliary contact block which is designed to fit all contactors of the range.

Command and signaling

Installation contactors

Ordering details ESB16..N - 16 A, AC-1 /AC-7a, AC/DC operated



ESB16..N

The ESB16..N installation contactors are used to control single-phase loads up to 16 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

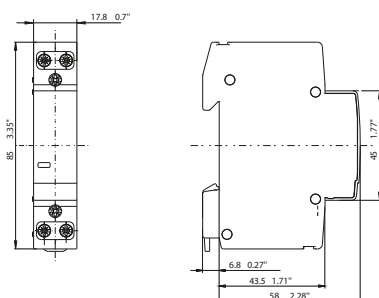
ESB16..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

| Main contacts | Width ⁽¹⁾ | Rated control circuit voltage ⁽²⁾ V AC/DC | Bbn 3471523 EAN | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|---------------------------|----------------------|---|-----------------------|---------------|-----------------|------------------|-------------------------|------------------|
| | | | | Type code | Order code | | | |
| Single packaging | | | | | | | | |
| | 1 | 24 | 004337 | ESB16-20N-01 | 1SBE111111R0120 | | 0.14 | 1 |
| | | 230 | 004481 | ESB16-20N-06 | 1SBE111111R0620 | | 0.14 | 1 |
| | 1 | 24 | 004313 | ESB16-02N-01 | 1SBE111111R0102 | | 0.14 | 1 |
| | | 230 | 004467 | ESB16-02N-06 | 1SBE111111R0602 | | 0.14 | 1 |
| | 1 | 24 | 004320 | ESB16-11N-01 | 1SBE111111R0111 | | 0.14 | 1 |
| | | 230 | 004474 | ESB16-11N-06 | 1SBE111111R0611 | | 0.14 | 1 |
| Multiple packaging | | | | | | | | |
| | 1 | 24 | 004726 | ESB16-20N-01 | 1SBE111111M0120 | | 0.14 | 12 |
| | | 230 | 004870 | ESB16-20N-06 | 1SBE111111M0620 | | 0.14 | 12 |
| | 1 | 24 | 004702 | ESB16-02N-01 | 1SBE111111M0102 | | 0.14 | 12 |
| | | 230 | 004856 | ESB16-02N-06 | 1SBE111111M0602 | | 0.14 | 12 |
| | 1 | 24 | 004719 | ESB16-11N-01 | 1SBE111111M0111 | | 0.14 | 12 |
| | | 230 | 004863 | ESB16-11N-06 | 1SBE111111M0611 | | 0.14 | 12 |

(1) In number of modular spacings.

(2) Other control voltages: see voltage code table and contact ABB for availability of products.



ESB16..N

Dimensions mm, inches

Command and signaling

Installation contactors

Ordering details ESB20..N - 20 A, AC-1 /AC-7a, AC/DC operated



ESB20..N

The ESB20..N installation contactors are used to control single-phase loads up to 20 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

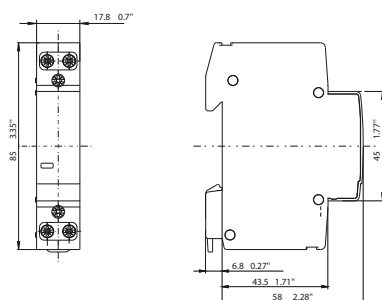
ESB20..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

| Main contacts | Width ⁽¹⁾ | Rated control circuit voltage ⁽²⁾ | Bbn 3471523 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|---------------------------|----------------------|--|-------------|---------------|-----------------|---------------|----------------|-----------|
| | | | | V AC/DC | EAN | | | |
| Single packaging | | | | | | | | |
| | 1 | 24 | 004566 | ESB20-20N-01 | 1SBE121111R0120 | | 0.14 | 1 |
| | | | | ESB20-20N-06 | 1SBE121111R0620 | | 0.14 | 1 |
| | 1 | 24 | 004559 | ESB20-02N-01 | 1SBE121111R0102 | | 0.14 | 1 |
| | | | | ESB20-02N-06 | 1SBE121111R0602 | | 0.14 | 1 |
| | 1 | 24 | 005310 | ESB20-11N-01 | 1SBE121111R0111 | | 0.14 | 1 |
| | | | | ESB20-11N-06 | 1SBE121111R0611 | | 0.14 | 1 |
| Multiple packaging | | | | | | | | |
| | 1 | 24 | 004962 | ESB20-20N-01 | 1SBE121111M0120 | | 0.14 | 12 |
| | | | | ESB20-20N-06 | 1SBE121111M0620 | | 0.14 | 12 |
| | 1 | 24 | 004948 | ESB20-02N-01 | 1SBE121111M0102 | | 0.14 | 12 |
| | | | | ESB20-02N-06 | 1SBE121111M0602 | | 0.14 | 12 |
| | 1 | 24 | 004955 | ESB20-11N-01 | 1SBE121111M0111 | | 0.14 | 12 |
| | | | | ESB20-11N-06 | 1SBE121111M0611 | | 0.14 | 12 |

(1) In number of modular spacings.

(2) Other control voltages: see voltage code table and contact ABB for availability of products.



ESB20..N

Dimensions mm, inches

Command and signaling

Installation contactors

Ordering details ESB25..N - 25 A, AC-1/AC-7a, AC/DC operated



ESB25..N

The ESB25..N installation contactors are used to control single and three-phases loads up to 25 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

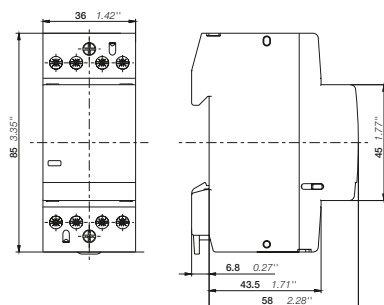
ESB25..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

| Main contacts | Width ⁽¹⁾ | Rated control circuit voltage ⁽²⁾ | Bbn 4013614 | Order details | | Price 1 piece | Weight 1 piece | Pack 1 piece unit |
|---------------------------|----------------------|--|-------------|---------------|-----------------|---------------|----------------|-------------------|
| | | | | V AC/DC | EAN | | | |
| Single packaging | | | | | | | | |
| | 2 | 24 | 523977 | ESB25-40N-01 | 1SAE231111R0140 | | 0.245 | 1 |
| | | | | 230...240 | 524257 | | | |
| | 2 | 24 | 523915 | ESB25-04N-01 | 1SAE231111R0104 | | 0.245 | 1 |
| | | | | 230...240 | 524196 | | | |
| | 2 | 24 | 523946 | ESB25-22N-01 | 1SAE231111R0122 | | 0.245 | 1 |
| | | | | 230...240 | 524226 | | | |
| | 2 | 24 | 523960 | ESB25-31N-01 | 1SAE231111R0131 | | 0.245 | 1 |
| | | | | 230...240 | 524240 | | | |
| | 2 | 24 | 523922 | ESB25-13N-01 | 1SAE231111R0113 | | 0.245 | 1 |
| | | | | 230...240 | 524202 | | | |
| Multiple packaging | | | | | | | | |
| | 2 | 24 | 519420 | ESB25-40N-01 | 1SAE231111M0140 | | 0.245 | 6 |
| | | | | 230...240 | 519703 | | | |
| | 2 | 24 | 519369 | ESB25-04N-01 | 1SAE231111M0104 | | 0.245 | 6 |
| | | | | 230...240 | 519642 | | | |
| | 2 | 24 | 519390 | ESB25-22N-01 | 1SAE231111M0122 | | 0.245 | 6 |
| | | | | 230...240 | 519673 | | | |
| | 2 | 24 | 519413 | ESB25-31N-01 | 1SAE231111M0131 | | 0.245 | 6 |
| | | | | 230...240 | 519697 | | | |
| | 2 | 24 | 519376 | ESB25-13N-01 | 1SAE231111M0113 | | 0.245 | 6 |
| | | | | 230...240 | 519659 | | | |

(1) In number of modular spacings.

(2) Other control voltages: see voltage code table and contact ABB for availability of products.



ESB25..N

Dimensions mm, inches

Command and signaling

Installation contactors

Ordering details ESB40..N - 40 A, AC-1/AC-7a, AC/DC operated



ESB40..N

The ESB40..N installation contactors are used to control single and three-phases loads up to 40 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

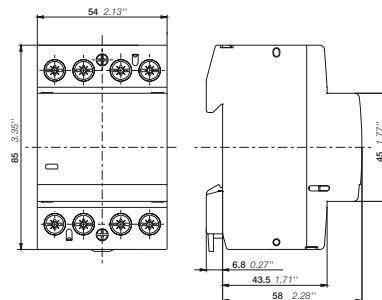
ESB40..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

| Main contacts | Width ⁽¹⁾ | Rated control circuit voltage ⁽²⁾ | Bbn 4013614 | Order details | | Price 1 piece | Weight 1 piece | Pack 1 piece unit |
|---------------------------|----------------------|--|-------------|---------------|-----------------|---------------|----------------|-------------------|
| | | | | V AC/DC | EAN | | | |
| Single packaging | | | | | | | | |
| | 3 | 24 | 524639 | ESB40-40N-01 | 1SAE341111R0140 | 0.405 | 1 | |
| | | 230 | 524820 | ESB40-40N-06 | 1SAE341111R0640 | 0.405 | 1 | |
| | 3 | 24 | 524608 | ESB40-22N-01 | 1SAE341111R0122 | 0.405 | 1 | |
| | | 230 | 524790 | ESB40-22N-06 | 1SAE341111R0622 | 0.405 | 1 | |
| | 3 | 24 | 524622 | ESB40-31N-01 | 1SAE341111R0131 | 0.405 | 1 | |
| | | 230 | 524813 | ESB40-31N-06 | 1SAE341111R0631 | 0.405 | 1 | |
| | 3 | 24 | 524615 | ESB40-30N-01 | 1SAE341111R0130 | 0.385 | 1 | |
| | | 230 | 524806 | ESB40-30N-06 | 1SAE341111R0630 | 0.385 | 1 | |
| | 3 | 24 | 524592 | ESB40-20N-01 | 1SAE341111R0120 | 0.370 | 1 | |
| | | 230 | 524783 | ESB40-20N-06 | 1SAE341111R0620 | 0.370 | 1 | |
| Multiple packaging | | | | | | | | |
| | 3 | 24 | 520075 | ESB40-40N-01 | 1SAE341111M0140 | 0.405 | 4 | |
| | | 230 | 520266 | ESB40-40N-06 | 1SAE341111M0640 | 0.405 | 4 | |
| | 3 | 24 | 520044 | ESB40-22N-01 | 1SAE341111M0122 | 0.405 | 4 | |
| | | 230 | 520235 | ESB40-22N-06 | 1SAE341111M0622 | 0.405 | 4 | |
| | 3 | 24 | 520068 | ESB40-31N-01 | 1SAE341111M0131 | 0.405 | 4 | |
| | | 230 | 520259 | ESB40-31N-06 | 1SAE341111M0631 | 0.405 | 4 | |
| | 3 | 24 | 520051 | ESB40-30N-01 | 1SAE341111M0130 | 0.385 | 4 | |
| | | 230 | 520242 | ESB40-30N-06 | 1SAE341111M0630 | 0.385 | 4 | |
| | 3 | 24 | 520037 | ESB40-20N-01 | 1SAE341111M0120 | 0.370 | 4 | |
| | | 230 | 520228 | ESB40-20N-06 | 1SAE341111M0620 | 0.370 | 4 | |

(1) In number of modular spacings.

(2) Other control voltages: see voltage code table and contact ABB for availability of products.



ESB40..N

Dimensions mm, inches

Command and signaling

Installation contactors

Ordering details ESB63..N - 63 A, AC-1/AC-7a, AC/DC operated



ESB63..N

The ESB63..N installation contactors are used to control single and three-phases loads up to 63 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

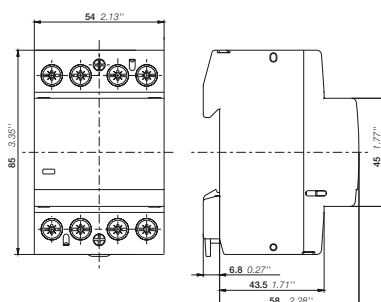
ESB63..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

| Main contacts | Width ⁽¹⁾ | Rated control circuit voltage ⁽²⁾ | Bbn 4013614 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|---------------------------|----------------------|--|-------------|---------------|-----------------|---------------|----------------|-----------|
| | | | | V AC/DC | EAN | | | |
| Single packaging | | | | | | | | |
| | 3 | 24 | 525278 | ESB63-40N-01 | 1SAE351111R0140 | | 0.405 | 1 |
| | | 230 | 525544 | ESB63-40N-06 | 1SAE351111R0640 | | 0.405 | 1 |
| | 3 | 230 | 525537 | ESB63-31N-06 | 1SAE351111R0631 | | 0.405 | 1 |
| | | 230 | 525520 | ESB63-30N-06 | 1SAE351111R0630 | | 0.385 | 1 |
| | 3 | 24 | 525247 | ESB63-20N-01 | 1SAE351111R0120 | | 0.37 | 1 |
| | | 230 | 525506 | ESB63-20N-06 | 1SAE351111R0620 | | 0.37 | 1 |
| Multiple packaging | | | | | | | | |
| | 3 | 24 | 520716 | ESB63-40N-01 | 1SAE351111M0140 | | 0.405 | 4 |
| | | 230 | 520983 | ESB63-40N-06 | 1SAE351111M0640 | | 0.405 | 4 |
| | 3 | 230 | 520976 | ESB63-31N-06 | 1SAE351111M0631 | | 0.405 | 4 |
| | | 230 | 520969 | ESB63-30N-06 | 1SAE351111M0630 | | 0.385 | 4 |
| | 3 | 24 | 520686 | ESB63-20N-01 | 1SAE351111M0120 | | 0.37 | 4 |
| | | 230 | 520945 | ESB63-20N-06 | 1SAE351111M0620 | | 0.37 | 4 |

(1) In number of modular spacings.

(2) Other control voltages: see voltage code table and contact ABB for availability of products.



ESB63..N

Dimensions mm, inches

Command and signaling

Installation contactors

Ordering details ESB100..N - 100 A, AC-1/AC-7a, AC/DC operated



ESB100-20N



ESB100-40N

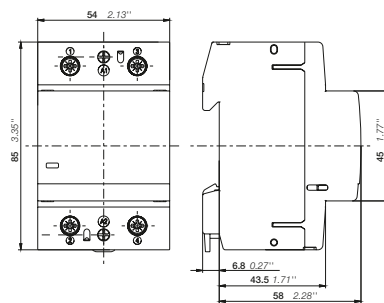
The ESB100..N installation contactors are used to control single and three-phases loads up to 100 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

ESB100..N series is providing the following benefits:

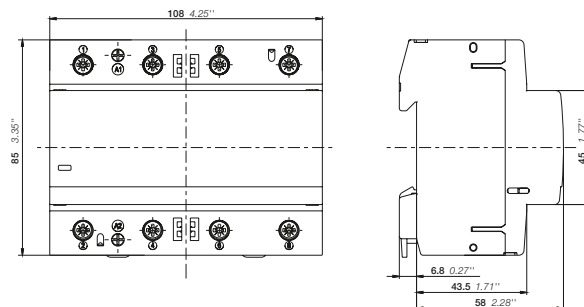
- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

| Main contacts | Width ⁽¹⁾ | Rated control circuit voltage | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack 1 piece unit |
|---------------------------|----------------------|-------------------------------|--------|---------------|-----------------|---------------|----------------|-------------------|
| | | | | V AC/DC | EAN | | | |
| Single packaging | | | | | | | | |
| | 6 | 24 | 533112 | ESB100-40N-01 | 1SAE661111R0140 | | | 1 |
| | | | | 230 | 533211 | | | |
| | 3 | 24 | 533013 | ESB100-20N-01 | 1SAE361111R0120 | | | 1 |
| | | | | 230 | 533037 | | | |
| Multiple packaging | | | | | | | | |
| | 3 | 24 | 533235 | ESB100-20N-01 | 1SAE361111M0120 | | | 2 |
| | | | | 230 | 533259 | | | |

(1) In number of modular spacings.



ESB100-20N



ESB100-40N

Dimensions mm, inches

Command and signaling

Installation contactors

Ordering details EN20N -20 A, manually/automatic operated



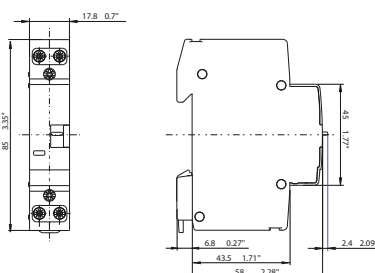
EN20..N

The EN20..N installation contactors are used to control single-phase loads up to 20 A and can be operated by AC or DC voltages. They have a built-in toggle switch to be operated manually or automatically. These contactors are made for use in household applications as well as in industrial environment.

EN20..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection and manual override.
- Various contact combinations and accessories are available.

| Main contacts | Width ⁽¹⁾ | Rated control circuit voltage ⁽¹⁾ V AC/DC | Bbn 3471523 EAN | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|---------------------------|----------------------|---|-----------------------|---------------|-----------------|------------------|-------------------------|---------------------|
| | | | | Type code | Order code | | | |
| Single packaging | | | | | | | | |
| | 1 | 24 | 004689 | EN20-20N-01 | 1SBE122111R0120 | | 0.14 | 1 |
| | | | | EN20-20N-06 | 1SBE122111R0620 | | 0.14 | 1 |
| Multiple packaging | | | | | | | | |
| | 1 | 24 | 005426 | EN20-20N-01 | 1SBE122111M0120 | | 0.14 | 12 |
| | | | | EN20-20N-06 | 1SBE122111M0620 | | 0.14 | 12 |



EN20..N

Dimensions mm, inches

Command and signaling

Installation contactors

Ordering details EN25..N, manually/automatic operated



EN25..N

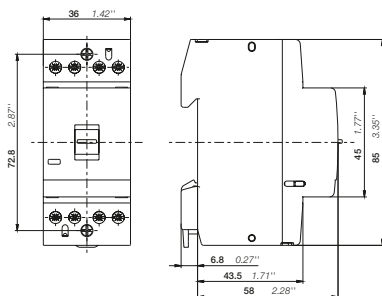
The EN25..N installation contactors are used to control single- and three-phase loads up to 25 A and can be operated by AC or DC voltages. They have a built-in toggle switch to be operated manually or automatically. These contactors are made for use in household applications as well as in industrial environment.

EN25..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection and manual override.
- Various contact combinations and accessories are available.

| Main contacts | Width ⁽¹⁾ | Rated control circuit voltage | Bbn 4013614 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|-------------------------|----------------------|-------------------------------|-------------|---------------------------|-----------------|---------------|-----------------|-----------|
| | | | | V AC/DC | EAN | | | |
| Single packaging | | | | | | | | |
| | 2 | 24 | 524431 | EN25-40N-01 | 1SAE232111R0140 | | 0.250 | 1 |
| | | | | 230 ... 240 | 524554 | EN25-40N-06 | 1SAE232111R0640 | |
| | 2 | 24 | 524424 | EN25-31N-01 | 1SAE232111R0131 | | 0.250 | 1 |
| | | | | 230 ... 240 | 524547 | EN25-31N-06 | 1SAE232111R0631 | |
| | 2 | 230 ... 240 | 524530 | EN25-30N-06 | 1SAE232111R0630 | | 0.235 | 1 |
| | | | | Multiple packaging | | | | |
| | 2 | 24 | 519871 | EN25-40N-01 | 1SAE232111M0140 | | 0.250 | 6 |
| | | | | 230 ... 240 | 519994 | EN25-40N-06 | 1SAE232111M0640 | |
| | 2 | 24 | 519864 | EN25-31N-01 | 1SAE232111M0131 | | 0.250 | 6 |
| | | | | 230 ... 240 | 519987 | EN25-31N-06 | 1SAE232111M0631 | |
| | 2 | 230 ... 240 | 519970 | EN25-30N-06 | 1SAE232111M0630 | | 0.235 | 6 |

(1) In number of modular spacings.



EN25..N

Dimensions mm, inches

Command and signaling

Installation contactors

Ordering details EN40..N, manually/automatic operated



EN40..N

The EN40..N installation contactors are used to control single- and three-phase loads up to 40 A and can be operated by AC or DC voltages. They have a built-in toggle switch to be operated manually or automatically. These contactors are made for use in household applications as well as in industrial environment.

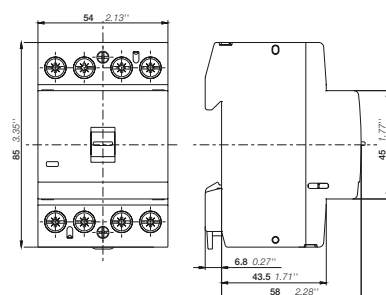
EN40..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection and manual override.
- Various contact combinations and accessories are available.

| Main contacts | Width ⁽¹⁾ | Rated control circuit voltage ⁽²⁾ | Bbn 4013614 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|---------------------------|----------------------|--|-------------|---------------|-----------------|---------------|----------------|-----------|
| | | | | V AC/DC | EAN | | | |
| Single packaging | | | | | | | | |
| | 3 | 24 | 524943 | EN40-40N-01 | 1SAE342111R0140 | | 0.410 | 1 |
| | | 230 | 525148 | EN40-40N-06 | 1SAE342111R0640 | | 0.410 | 1 |
| | 3 | 24 | 524936 | EN40-31N-01 | 1SAE342111R0131 | | 0.410 | 1 |
| | | 230 | 525131 | EN40-31N-06 | 1SAE342111R0631 | | 0.410 | 1 |
| | 3 | 230 | 525124 | EN40-30N-06 | 1SAE342111R0630 | | 0.410 | 1 |
| | | 230 | 525117 | EN40-20N-06 | 1SAE342111R0620 | | 0.375 | 1 |
| Multiple packaging | | | | | | | | |
| | 3 | 24 | 520389 | EN40-40N-01 | 1SAE342111M0140 | | 0.410 | 4 |
| | | 230 | 520587 | EN40-40N-06 | 1SAE342111M0640 | | 0.410 | 4 |
| | 3 | 24 | 520372 | EN40-31N-01 | 1SAE342111M0131 | | 0.410 | 4 |
| | | 230 | 520570 | EN40-31N-06 | 1SAE342111M0631 | | 0.410 | 4 |
| | 3 | 230 | 520563 | EN40-30N-06 | 1SAE342111M0630 | | 0.410 | 4 |
| | | 230 | 520556 | EN40-20N-06 | 1SAE342111M0620 | | 0.375 | 4 |

(1) In number of modular spacings.

(2) Other control voltages: see voltage code table and contact ABB for availability of products.



EN40..N

Dimensions mm, inches

Command and signaling

Installation contactors

Ordering details installation contactors accessories



EH04-20N

Auxiliary contact blocks

| Suitable for | Auxiliary contacts | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|--|--------------------|---------|---------------|-----------------|------------------|-------------------|--------------|
| | | 4013614 | EAN | Type code | | | |
| Single packaging | | | | | | | |
| ESB16..N, ESB20..N, ESB25..N, ESB40..N, ESB63..N, ESB100..N, EN20..N, EN25..N, EN40..N | | 527814 | EH04-11N | 1SAE901901R1011 | | 0.040 | 1 |
| ESB16..N, ESB20..N, ESB25..N, ESB40..N, ESB63..N, ESB100..N, EN20..N, EN25..N, EN40..N | | 527821 | EH04-20N | 1SAE901901R1020 | | 0.040 | 1 |
| Multiple packaging | | | | | | | |
| ESB16..N, ESB20..N, ESB25..N, ESB40..N, ESB63..N, ESB100..N, EN20..N, EN25..N, EN40..N | | 528019 | EH04-11N | 1SAE901901M1011 | | 0.040 | 6 |
| ESB16..N, ESB20..N, ESB25..N, ESB40..N, ESB63..N, ESB100..N, EN20..N, EN25..N, EN40..N | | 528026 | EH04-20N | 1SAE901901M1020 | | 0.040 | 6 |

Accessories

| Suitable for | Description | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|---|----------------|---------|-----------------------|-----------------|------------------|-------------------|--------------|
| | | 4013614 | EAN | Type code | | | |
| Sealing covers | | | | | | | |
| ESB25..N, EN25..N | sealing cover | 420221 | ESB-PLK24 | GHE3201903R0001 | | 0.002 | 10 |
| ESB40..N, ESB63..N, EN40..N | sealing cover | 420931 | ESB-PLK40/63 | GHE3401903R0001 | | 0.003 | 10 |
| Distance piece | | | | | | | |
| ESB25..N, ESB40..N, ESB63..N, EN25..N, EN40..N | distance piece | 420207 | ESB-DIS ¹⁾ | GHE3201902R0001 | | 0.002 | 10 |

1) If several contactors are mounted adjacently and the duty time is longer than one hour, every second contactor needs a distance piece, Type ESB-DIS (1/2 module). This is not necessary at an ambient temperature $\leq 40^\circ\text{C}$ or on Type ESB16..N, ESB/EN20..N and ESB100..N.



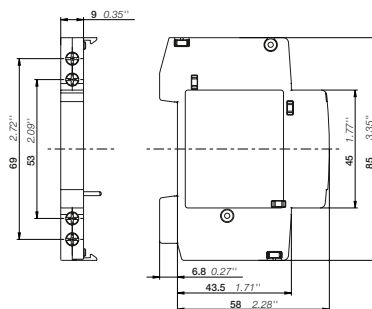
ESB-PLK24



ESB-DIS



ESB-SPK40/63



EH04..N

Dimensions mm, inches

Command and signaling

E290 Latching relays



E290

E290 Latching Relay

| General | | | |
|--|---------------------------------|----------------------------------|--|
| Overall depth | 68 mm | | |
| Overall width | 1 module (18 mm) | | |
| Color | grey, RAL 7035 | | |
| Climate resistance in accordance with | IEC 60068-2-2 (dry heat) | | |
| | IEC 60068-2-30 (humid heat) | | |
| | IEC 60068-2-1 (low temperature) | | |
| Ambient temperature | -25°C to +55°C | | |
| Storage temperature | -40°C to +70°C | | |
| Contact system | Double interruption | | |
| Tightening torque | 1.2 - 1.5 Nm | | |
| Weight | 0.122 kg | | |
| Standards | 50 Hz | IEC/EN 60669-1; IEC/EN 60669-2-2 | |
| | 60 Hz | IEC 60669-1; IEC 60669-2-2 | |
| Approvals | 50 Hz | VDE; EAC | |
| | 60 Hz | RINA | |
| Power Circuit | | | |
| Rated Current I_n | E290-16-.../... | 16 A | – |
| | E290-32-.../... | – | 32 A |
| Rated voltage U_n | 250 VAC | | 250 VAC |
| Frequency | 50/60 Hz | | 50/60 Hz |
| Short circuit withstand capacity I_{nc} | 3 kA | | 3 kA |
| Back-up fuses (gL) | max. 16 A | | max. 32 A |
| Latching Relay contact configurations for 16 A and 32 A Additional power contacts for 16 A (attachable) (not for 32 A version) | | | 1NO; 2NO; 1NO + 1NC 1CO; 2NO; 1NO + 1NC |
| Max. DC current per contact with 24 VDC | 5 A | | 8 A |
| Bounce time | 50 Hz | < 3 ms | |
| | 60 Hz | < 6 ms | |
| Power loss in W per contact | 0.32 W | | 1.2 W |
| Rated impulse withstand voltage U_{imp} | | | 4 kV |
| Max. lamp load | | | |
| Glow lamps (20 W - 200 W) | 3000 W | | 4000 W |
| Flourescent lamps, uncorrected power factor (cos. 0.5) | 1800 W | | 2200 W |
| Flourescent lamps, corrected power factor (cos. 0.9) | serial | 3000 W | 4000 W |
| | parallel | 2500 W | 3200 W |
| | single | 1800 W | 2200 W |
| | double | 2500 W | 3200 W |
| (see also lamp load table) | | | |

Command and signaling

E290 Latching relays

E290 Latching Relay

| Lifetime (switching cycles) | |
|--|---|
| Electrical (AC1 rated current load) | 150000 |
| Mechanical | 250000 |
| Connector cross-sections | |
| Connecting terminals | solid from 1x1 mm ² to 1x10 mm ² or 2x2.5 mm ² flexible from 1x0.75 mm ² to 1x16 mm ² (Cu) with end ferrule or pin cable lug |
| Control Circuit | |
| Rated control voltages U _n | AC: 8 V; 12 V; 24 V; 48 V; 115 V; 230 V DC: –; –; 12 V*; 24 V; 60 V*; 110 V* <small>* for 50 Hz devices only</small> |
| AC/DC ratio ¹⁾ | 1: 0.5 (not available for 8 VAC and 12 VAC coils) |
| Operation limits | +/- 10% = 0.9 - 1.1 x U _n |
| Minimum command duration | 50 ms |
| Max. switching operations | 15 x per min. at I _n 16 A; 8 x per min. at I _n 32 A |
| switching noise | 60 dB (A) (distance 1 m) |
| Max. number of illuminated buttons (0.6 mA) | (see table on page 16) |
| Max. glow lamp current parallel to the 230 V control buttons | 5 mA |

Coil Consumption – E290 Latching Relay

| Product type | Control voltage | Coil consumption average pull-in current | Control voltage | Coil consumption average pull-in current |
|---------------|-----------------|--|-----------------|--|
| | V AC | A | V DC | A |
| E290 | 230 | 0.062 | 110* | 0.057* |
| | 115 | 0.070 | 60* | 0.105* |
| | 48 | 0.212 | 24 | 0.207 |
| | 24 | 0.434 | 12* | 0.558* |
| | 12 | 1.263 | – | – |
| | 8 | 2.048 | – | – |
| E291S* | 230 | 0.051 | 110 | 0.047 |
| | 24 | 0.378 | 12 | 0.355 |
| | 12 | 0.803 | – | – |
| | 8 | 1.088 | – | – |
| E294 | 230 | 0.120 | – | – |
| | 24 | 0.684 | – | – |

1) Coil supply voltage: All E290 50Hz devices can be supplied with AC or DC control voltage.
The ratio of 1 : 0.5 applies, i.e. a 230 VAC coil can also be used for 110 VDC. (See Ordering data.)

NO = normally-open contact; NC = normally-closed contact; CO = changeover contact

* for 50 Hz devices only

Command and signaling

E290 Latching relays

Switching components for E290

| E292-16-... Contact Module (attachable only to 16 A I_n version) | |
|---|--|
| Rated current I _n per E292 contact | 16 A |
| Rated voltage U _n | 250 VAC |
| Frequency | 50/60 Hz |
| Max. no. attachable (additional main contacts) | 1 unit (attachable on the right side of the main module) |
| Contact configurations | 1CO; 2NO; 1NO+1NC |
| Max. DC current per contact with 24 VDC | 8 A |
| Min. switching load (for 50 Hz devices only) | 24 V; 10 mA |
| E299-... Auxiliary Contacts | |
| Max. no. attachable (signaling or control contacts) | 1 unit (attachable on the right side of the main module) |
| Number of contacts | 1 NO + 1 NC; 2 NO |
| Min. switching load | 24 V, 10 mA |
| Max. current per contact with AC | 5.0 A |
| Max. current per contact with 24 VDC | 5.0 A |

Control components for E290

| E294 Central On-Off Control Module (different control voltage potential) | |
|---|---|
| Max. no. attachable | 1 unit (attachable on the left side of the main module) |
| Rated current I _n max. | 1 A |
| Rated voltage U _n | 250 VAC |
| E295-PS Permanent Signal Module | |
| Max. no. attachable | 1 unit (attachable on the left side of the main module) |
| Rated current I _n max. | 1 A |
| Rated voltage U _n | 250 VAC |
| E295-GM Group Module | |
| Use of group switching modules | 1 unit per defined group |
| Rated current I _n max. | 1 A |
| Rated voltage U _n | 250 VAC |
| E296-CP Compensator | |
| Compensation when using illuminated buttons | Wiring parallel to the main module |
| Compensation | 50 Hz 2.2 uF |
| | 60 Hz 2.2 uF |
| Rated voltage U _n | 50 Hz 250 VAC |
| | 60 Hz 310 VAC |

Command and signaling

E297 Installation relay



E297

E297 Installation Relays

| General | | |
|--|---|--------|
| Overall depth | 68mm | |
| Overall width | 1 module (18mm) | |
| Colour | grey, RAL 7035 | |
| Climate resistance in accordance with | IEC 60068-2-2 (dry heat) IEC 60068-2-30 (humid heat) IEC 60068-2-1 (low temperatures) | |
| Ambient temperature | - 25 °C to + 55 °C | |
| Storage temperature | - 40 °C to + 70 °C | |
| Tightening torque | 1.2 - 1.5 Nm | |
| Weight | 0.122 kg | |
| Standards | EN 60669-1; EN 60669-2-2 | |
| Approval | VDE; EAC | |
| Power circuit | | |
| Rated current I _n | 16 A | |
| Rated voltage U _n | 250 VAC | |
| Frequency | 50-60 Hz | |
| Short circuit withstand capacity I _{nc} | 3 kA | |
| Back-up fuses (gL) | max. 16 A | |
| Installation relay contact configurations | 1NO; 2NO; 1NO+1NC | |
| Additional Power contacts 16A (attachable) | 1CO; 2NO; 1NO+1NC | |
| Max. DC current per contact with 24 VDC | 8 A | |
| Min. switching load | 24 V; 10 mA | |
| Bounce time | < 3 ms | |
| Power loss in W per contact | 0.50 W | |
| Rated Impulse withstand voltage U _{imp} | 4 kV | |
| Max. lamp load | | |
| Glow lamps (20 W-200 W) | 3000 W | |
| Fluorescent lamps, uncorrected power factor (cos. 0.5) | 1800 W | |
| Fluorescent lamps, corrected power factor (cos. 0.9) | serial | 3000 W |
| | parallel | 2500 W |
| | single | 1800 W |
| | double | 2500 W |
| (see also lamp load table) | | |
| Lifetime (switching cycles) | | |
| Electrical (AC1 rated current load) | 150,000 | |
| Mechanical | 250,000 | |

Command and signaling

E297 Installation relay

E297 Installation Relays

| Application categories | | |
|---------------------------------------|---|---------|
| Switching capacity in accordance with | AC-1 (based on EN 60947) | 16 A |
| | AC-5b (based on EN 60947) | 5 A |
| | AC-7a (based on EN 61095) | 16 A |
| | AC-7c (based on EN 61095) | 5 A |
| Connector cross-sections | | |
| Main connecting terminals | solid from 1 x 1 mm ² to 1 x 10 mm ² or 2 x 2.5 mm ² flexible from 1 x 0.75 mm ² up to 1 x 6 mm ² (Cu) with end ferrule or pin cable lug | |
| Control circuit | | |
| Coil rated voltages Un AC/DC | 8 VAC; 12 VAC; 24 VAC/24 VDC; 48 VAC/48 VDC; 115 VAC/110 VDC; 230 VAC | |
| AC/DC ratio 3) | 1 : 1 | |
| Operation limits | +/- 10% = 0.9 - 1.1 x Un | |
| Switching noise | 60 dB (A) (distance 1 m) | |
| Max. switching operations | 15 x per min. at In 16 A | |
| Coil power loss | | |
| | AC | DC |
| Pick up | < 2.8 VA | < 2.0 W |
| Holding | < 2.6 VA | < 1.8 W |

Switching components for E297

| E298 Contact Module | |
|--|--|
| Max. no. attachable 2) (additional main contacts) | 1 unit (attachable on the right side of the main module) |
| Rated current In per E298 contact | 16 A |
| Rated voltage Un | 250 VAC |
| Frequency | 50 Hz |
| Number of contacts | 1CO; 2NO; 1NO+1NC |
| Max. DC current per contact with 24 VDC | 5 A |
| Min. switching load | 24 V; 10 mA |
| E299 - ... Auxiliary Contacts | |
| Max. no. attachable 2) (signaling or control contacts) | 1 unit (attachable on the right side of the main module) |
| Number of contacts | 1NO+1NC; 2NO |
| Max. current per contact with AC | 5.0 A |
| Max. current per contact with 24 VDC | 5.0 A |

Command and signaling

E290 Latching relays



E290

Latching Relay

This 18 mm wide DIN rail mounted device is designed for direct installation in main distribution or sub-distribution systems (mounted on 35 mm DIN mounting rails). The devices are activated by means of control pulses and guarantee energy-optimized lighting control. As a rule, installations with latching relays are used where the lighting control system can be operated from at least three points in different locations. Those latching relays are designed for a rated current of 16 A or 32 A.

Standard number of contacts:

1 NO contact, 2 NO contacts or 1 NO contact + 1 NC contact

The number of switching contacts can be increased by a maximum of two main contacts using a snap-on main module (E292-...-). As a result, up to four lighting sets can be switched by a single device.

A signaling and/or indicating facility can be created using the additional snap-on auxiliary contact module (E299-11).

The various standard AC/DC coil voltages complete the comprehensive and interesting product range. The additional devices can be snapped onto the latching relay on the left or right side.

| Rated current = 16 A | | | | | | | | | |
|----------------------|----------------|------------|--------------------------------|-----------------|----------------|-----------------|---------------|------------|---------------|
| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 EAN | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | | Type code | Order code | | | |
| 1NO | 0.32 | 18 | 8VAC | 939558 | E290-16-10/8 | 2TAZ312000R2061 | 0.114 | 10 | |
| | 0.32 | 18 | 12VAC | 939565 | E290-16-10/12 | 2TAZ312000R2051 | 0.114 | 10 | |
| | 0.32 | 18 | 24VAC/12VDC | 939572 | E290-16-10/24 | 2TAZ312000R2041 | 0.114 | 10 | |
| | 0.32 | 18 | 48VAC/24VDC | 939589 | E290-16-10/48 | 2TAZ312000R2031 | 0.114 | 10 | |
| | 0.32 | 18 | 115VAC/60VDC | 939596 | E290-16-10/115 | 2TAZ312000R2021 | 0.114 | 10 | |
| | 0.32 | 18 | 230VAC/110VDC | 939602 | E290-16-10/230 | 2TAZ312000R2011 | 0.114 | 10 | |
| Rated current = 32 A | | | | | | | | | |
| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 EAN | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | | Type code | Order code | | | |
| 1NO | 1.20 | 18 | 8VAC | 939619 | E290-32-10/8 | 2TAZ322000R2061 | 0.114 | 10 | |
| | 1.20 | 18 | 12VAC | 939626 | E290-32-10/12 | 2TAZ322000R2051 | 0.114 | 10 | |
| | 1.20 | 18 | 24VAC/12VDC | 939633 | E290-32-10/24 | 2TAZ322000R2041 | 0.114 | 10 | |
| | 1.20 | 18 | 48VAC/24VDC | 939640 | E290-32-10/48 | 2TAZ322000R2031 | 0.114 | 10 | |
| | 1.20 | 18 | 115VAC/60VDC | 939657 | E290-32-10/115 | 2TAZ322000R2021 | 0.114 | 10 | |
| | 1.20 | 18 | 230VAC/110VDC | 939664 | E290-32-10/230 | 2TAZ322000R2011 | 0.114 | 10 | |
| Rated current = 16 A | | | | | | | | | |
| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 EAN | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | | Type code | Order code | | | |
| 2NO | 0.64 | 18 | 8VAC | 939671 | E290-16-20/8 | 2TAZ312000R2062 | 0.122 | 10 | |
| | 0.64 | 18 | 12VAC | 939688 | E290-16-20/12 | 2TAZ312000R2052 | 0.122 | 10 | |
| | 0.64 | 18 | 24VAC/12VDC | 939695 | E290-16-20/24 | 2TAZ312000R2042 | 0.122 | 10 | |
| | 0.64 | 18 | 48VAC/24VDC | 939701 | E290-16-20/48 | 2TAZ312000R2032 | 0.122 | 10 | |
| | 0.64 | 18 | 115VAC/60VDC | 939718 | E290-16-20/115 | 2TAZ312000R2022 | 0.122 | 10 | |
| | 0.64 | 18 | 230VAC/110VDC | 939725 | E290-16-20/230 | 2TAZ312000R2012 | 0.122 | 10 | |

Command and signaling

E290 Latching relays

| Rated current = 32 A | | | | | | | | | |
|----------------------|------------|------------|----------------------|-------------|----------------|-----------------|---------------|------------|---------------|
| Contact config. | Power loss | Width [mm] | Coil control voltage | Bbn 7612270 | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | | EAN | Type code | | | |
| 2NO | 2.40 | 18 | 8VAC | 939732 | E290-32-20/8 | 2TAZ322000R2062 | 0.122 | 10 | |
| | 2.40 | 18 | 12VAC | 939749 | E290-32-20/12 | 2TAZ322000R2052 | 0.122 | 10 | |
| | 2.40 | 18 | 24VAC/12VDC | 939756 | E290-32-20/24 | 2TAZ322000R2042 | 0.122 | 10 | |
| | 2.40 | 18 | 48VAC/24VDC | 939763 | E290-32-20/48 | 2TAZ322000R2032 | 0.122 | 10 | |
| | 2.40 | 18 | 115VAC/60VDC | 939770 | E290-32-20/115 | 2TAZ322000R2022 | 0.122 | 10 | |
| | 2.40 | 18 | 230VAC/110VDC | 939787 | E290-32-20/230 | 2TAZ322000R2012 | 0.122 | 10 | |
| | | | | | | | | | |
| Rated current = 16 A | | | | | | | | | |
| Contact config. | Power loss | Width [mm] | Coil control voltage | Bbn 7612270 | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | | EAN | Type code | | | |
| 1NO+1NC | 0.50 | 18 | 8VAC | 939794 | E290-16-11/8 | 2TAZ312000R2063 | 0.122 | 10 | |
| | 0.50 | 18 | 12VAC | 939800 | E290-16-11/12 | 2TAZ312000R2053 | 0.122 | 10 | |
| | 0.50 | 18 | 24VAC/12VDC | 939817 | E290-16-11/24 | 2TAZ312000R2043 | 0.122 | 10 | |
| | 0.50 | 18 | 48VAC/24VDC | 939824 | E290-16-11/48 | 2TAZ312000R2033 | 0.122 | 10 | |
| | 0.50 | 18 | 115VAC/60VDC | 939831 | E290-16-11/115 | 2TAZ312000R2023 | 0.122 | 10 | |
| | 0.50 | 18 | 230VAC/110VDC | 939848 | E290-16-11/230 | 2TAZ312000R2013 | 0.122 | 10 | |
| | | | | | | | | | |
| Rated current = 32 A | | | | | | | | | |
| Contact config. | Power loss | Width [mm] | Coil control voltage | Bbn 7612270 | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | | EAN | Type code | | | |
| 1NO+1NC | 1.20 | 18 | 8VAC | 939855 | E290-32-11/8 | 2TAZ322000R2063 | 0.122 | 10 | |
| | 1.20 | 18 | 12VAC | 939862 | E290-32-11/12 | 2TAZ322000R2053 | 0.122 | 10 | |
| | 1.20 | 18 | 24VAC/12VDC | 939879 | E290-32-11/24 | 2TAZ322000R2043 | 0.122 | 10 | |
| | 1.20 | 18 | 48VAC/24VDC | 939886 | E290-32-11/48 | 2TAZ322000R2033 | 0.122 | 10 | |
| | 1.20 | 18 | 115VAC/60VDC | 939893 | E290-32-11/115 | 2TAZ322000R2023 | 0.122 | 10 | |
| | 1.20 | 18 | 230VAC/110VDC | 939909 | E290-32-11/230 | 2TAZ322000R2013 | 0.122 | 10 | |
| | | | | | | | | | |

Command and signaling

E290 Latching relays



E291S



E292



E294



E295



E299

Sequential Latching Relay

The sequential latching relay is an 18 mm wide device which has two NO contacts. The preset switching sequence for the main contacts enables the switching on and off, of different lighting sets to be „programmed“. The E291S has an easily visible switch position display on the front.

| Rated current = 16 A | | | | | | | | | |
|----------------------|----------------|------------|--------------------------------|-----------------|-----------------|-----------------|---------------|------------|---------------|
| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 EAN | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | | Type code | Order code | | | |
| 2NO | 0.64 | 18 | 8VAC | 939919 | E291S-16-20/8 | 2TAZ313000R2062 | | 0.110 | 10 |
| | 0.64 | 18 | 12VAC | 939923 | E291S-16-20/12 | 2TAZ313000R2052 | | 0.110 | 10 |
| | 0.64 | 18 | 24VAC/12VDC | 939930 | E291S-16-20/24 | 2TAZ313000R2042 | | 0.110 | 10 |
| | 0.64 | 18 | 230VAC/110VDC | 939947 | E291S-16-20/230 | 2TAZ313000R2012 | | 0.110 | 10 |

Accessories for E290 Latching Relays

Accessories and additional devices for combinations with Latching Relays

Main Contact Module

| Rated current = 16 A | | | | | | | | | |
|----------------------|----------------|------------|--------------------------------|-----------------|---------------|-----------------|---------------|------------|---------------|
| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 EAN | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | | Type code | Order code | | | |
| 2NO | 0.64 | 9 | | 939480 | E292-16-20 | 2CCA704300R0001 | | 0.045 | 10 |
| 1NO+1NC | 0.32 | 9 | | 939503 | E292-16-11 | 2CCA704301R0001 | | 0.045 | 10 |
| 1CO | 0.32 | 9 | | 939527 | E292-16-001 | 2CCA704302R0001 | | 0.045 | 10 |

Central On-Off Control Module (with different control voltages)

| | | | | | | | | |
|--|----|--------|--------|----------|-----------------|--|-------|---|
| | 18 | 24VAC | 939411 | E294/24 | 2TAZ312001R2043 | | 0.110 | 5 |
| | 18 | 230VAC | 939442 | E294/230 | 2TAZ312001R2013 | | 0.110 | 5 |

Permanent Signal Module

| | | | | | | | | |
|--|----|--|--------|---------|-----------------|--|-------|----|
| | 18 | | 939459 | E295-PS | 2TAZ312005R1003 | | 0.041 | 10 |
|--|----|--|--------|---------|-----------------|--|-------|----|

Group Module

| | | | | | | | | |
|--|----|--|--------|---------|-----------------|--|-------|----|
| | 18 | | 939466 | E295-GM | 2TAZ310002R1000 | | 0.059 | 10 |
|--|----|--|--------|---------|-----------------|--|-------|----|

Compensator

| | | | | | | | | |
|--|----|--|--------|---------|-----------------|--|-------|----|
| | 18 | | 939473 | E296-CP | 2TAZ310003R1000 | | 0.055 | 10 |
|--|----|--|--------|---------|-----------------|--|-------|----|

Auxiliary Contact for Latching and Installation relays

| Rated current = 5 A | | | | | | | | | |
|---------------------|----------------|------------|--------------------------------|-----------------|---------------|-----------------|---------------|------------|---------------|
| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612271 EAN | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | | Type code | Order code | | | |
| 1NO+1NC | 0.10 | 9 | 250VAC | 939985 | E299-11 | 2CCA704340R0001 | | 0.045 | 10 |
| 2NO | 0.10 | 9 | 250VAC | 465346* | E299-20 | 2CCA704341R0001 | | 0.045 | 10 |

* with Bbn 7612271

Intermediate piece (for heating dissipation - bag contains 5 items)

| | | | | | | | | | |
|--|----|--|--|--------|--------|-----------------|--|-------|-------|
| | 18 | | | 100989 | ZLS725 | 2CCS500900R0181 | | 0.100 | 1 bag |
| | 9 | | | 104703 | ZLS726 | 2CCS400900R0091 | | 0.070 | 1 bag |

Command and signaling

E290 60Hz Mechanical latching relay – Ordering data

Standard devices – E290 60 Hz Latching Relay

| Cont. config. | Rated Voltage | Power loss W | Width mm | Coil control voltage VAC/VDC | Ordering data | | Bbn 7612271 | Weight per unit kg | Pack. unit units |
|-----------------------------|---------------|-----------------|-------------|---------------------------------|-------------------|-----------------|----------------|--------------------------|------------------------|
| | | | | | Type code | Order code | | | |
| Rated current = 16 A | | | | | | | | | |
| 1NO | 250 | 0.32 | 18 | 230VAC | E290-16-10/230-60 | 2TAZ352000R2011 | 503901 | 0.111 | 10 |
| 1NO | 250 | 0.32 | 18 | 115VAC | E290-16-10/115-60 | 2TAZ352000R2021 | 504328 | 0.111 | 10 |
| 1NO | 250 | 0.32 | 18 | 48VAC | E290-16-10/48-60 | 2TAZ352000R2031 | 504359 | 0.111 | 10 |
| 1NO | 250 | 0.32 | 18 | 24VAC | E290-16-10/24-60 | 2TAZ352000R2041 | 504380 | 0.111 | 10 |
| 1NO | 250 | 0.32 | 18 | 24VDC | E290-16-10/24DC | 2TAZ352000R2071 | 504472 | 0.111 | 10 |
| 1NO | 250 | 0.32 | 18 | 12VAC | E290-16-10/12-60 | 2TAZ352000R2051 | 504410 | 0.111 | 10 |
| 1NO | 250 | 0.32 | 18 | 8VAC | E290-16-10/8-60 | 2TAZ352000R2061 | 504441 | 0.111 | 10 |
| 2NO | 250 | 0.64 | 18 | 230VAC | E290-16-20/230-60 | 2TAZ352000R2012 | 503918 | 0.122 | 10 |
| 2NO | 250 | 0.64 | 18 | 115VAC | E290-16-20/115-60 | 2TAZ352000R2022 | 504335 | 0.122 | 10 |
| 2NO | 250 | 0.64 | 18 | 48VAC | E290-16-20/48-60 | 2TAZ352000R2032 | 504366 | 0.122 | 10 |
| 2NO | 250 | 0.64 | 18 | 24VAC | E290-16-20/24-60 | 2TAZ352000R2042 | 504397 | 0.122 | 10 |
| 2NO | 250 | 0.64 | 18 | 24VDC | E290-16-20/24DC | 2TAZ352000R2072 | 504489 | 0.122 | 10 |
| 2NO | 250 | 0.64 | 18 | 12VAC | E290-16-20/12-60 | 2TAZ352000R2052 | 504427 | 0.122 | 10 |
| 2NO | 250 | 0.64 | 18 | 8VAC | E290-16-20/8-60 | 2TAZ352000R2062 | 504458 | 0.122 | 10 |
| 1NO+1NC | 250 | 0.50 | 18 | 230VAC | E290-16-11/230-60 | 2TAZ352000R2013 | 504311 | 0.121 | 10 |
| 1NO+1NC | 250 | 0.50 | 18 | 115VAC | E290-16-11/115-60 | 2TAZ352000R2023 | 504342 | 0.121 | 10 |
| 1NO+1NC | 250 | 0.50 | 18 | 48VAC | E290-16-11/48-60 | 2TAZ352000R2033 | 504373 | 0.121 | 10 |
| 1NO+1NC | 250 | 0.50 | 18 | 24VAC | E290-16-11/24-60 | 2TAZ352000R2043 | 504403 | 0.121 | 10 |
| 1NO+1NC | 250 | 0.50 | 18 | 24VDC | E290-16-11/24DC | 2TAZ352000R2073 | 504496 | 0.121 | 10 |
| 1NO+1NC | 250 | 0.50 | 18 | 12VAC | E290-16-11/12-60 | 2TAZ352000R2053 | 504434 | 0.121 | 10 |
| 1NO+1NC | 250 | 0.50 | 18 | 8VAC | E290-16-11/8-60 | 2TAZ352000R2063 | 504465 | 0.121 | 10 |
| Rated current = 32 A | | | | | | | | | |
| 1NO | 250 | 1.20 | 18 | 230VAC | E290-32-10/230-60 | 2TAZ362000R2011 | 504502 | 0.111 | 10 |
| 1NO | 250 | 1.20 | 18 | 115VAC | E290-32-10/115-60 | 2TAZ362000R2021 | 504533 | 0.111 | 10 |
| 1NO | 250 | 1.20 | 18 | 48VAC | E290-32-10/48-60 | 2TAZ362000R2031 | 504564 | 0.111 | 10 |
| 1NO | 250 | 1.20 | 18 | 24VAC | E290-32-10/24-60 | 2TAZ362000R2041 | 504595 | 0.111 | 10 |
| 1NO | 250 | 1.20 | 18 | 12VAC | E290-32-10/12-60 | 2TAZ362000R2051 | 504625 | 0.111 | 10 |
| 1NO | 250 | 1.20 | 18 | 8VAC | E290-32-10/8-60 | 2TAZ362000R2061 | 504656 | 0.111 | 10 |
| 2NO | 250 | 2.40 | 18 | 230VAC | E290-32-20/230-60 | 2TAZ362000R2012 | 504519 | 0.123 | 10 |
| 2NO | 250 | 2.40 | 18 | 115VAC | E290-32-20/115-60 | 2TAZ362000R2022 | 504540 | 0.123 | 10 |
| 2NO | 250 | 2.40 | 18 | 48VAC | E290-32-20/48-60 | 2TAZ362000R2032 | 504571 | 0.123 | 10 |
| 2NO | 250 | 2.40 | 18 | 24VAC | E290-32-20/24-60 | 2TAZ362000R2042 | 504601 | 0.123 | 10 |
| 2NO | 250 | 2.40 | 18 | 12VAC | E290-32-20/12-60 | 2TAZ362000R2052 | 504632 | 0.123 | 10 |
| 2NO | 250 | 2.40 | 18 | 8VAC | E290-32-20/8-60 | 2TAZ362000R2062 | 504663 | 0.123 | 10 |
| 1NO+1NC | 250 | 1.20 | 18 | 230VAC | E290-32-11/230-60 | 2TAZ362000R2013 | 504526 | 0.121 | 10 |
| 1NO+1NC | 250 | 1.20 | 18 | 115VAC | E290-32-11/115-60 | 2TAZ362000R2023 | 504557 | 0.121 | 10 |
| 1NO+1NC | 250 | 1.20 | 18 | 48VAC | E290-32-11/48-60 | 2TAZ362000R2033 | 504588 | 0.121 | 10 |
| 1NO+1NC | 250 | 1.20 | 18 | 24VAC | E290-32-11/24-60 | 2TAZ362000R2043 | 504618 | 0.121 | 10 |
| 1NO+1NC | 250 | 1.20 | 18 | 12VAC | E290-32-11/12-60 | 2TAZ362000R2053 | 504649 | 0.121 | 10 |
| 1NO+1NC | 250 | 1.20 | 18 | 8VAC | E290-32-11/8-60 | 2TAZ362000R2063 | 504670 | 0.121 | 10 |

Command and signaling

E290 60Hz Mechanical latching relay – Ordering data

Accessories and additional devices for combinations with Latching relays

| Cont. config. | Rated Voltage | Power loss | Width | Coil control voltage | Ordering data | Bbn 7612270 | Weight per unit | Pack. unit | |
|---|---------------|------------|---------|----------------------|----------------|-----------------|-----------------|------------|-------|
| VAC | W | mm | VAC/VDC | Type code | Order code | EAN | kg | units | |
| Main Contact Module (Rated current = 16 A) | | | | | | | | | |
| 1NO+1NC | 250 | 0.32 | 9 | | E292-16-11-60 | 2CCA704306R0001 | 503017 | 0.045 | 10 |
| 2NO | 250 | 0.64 | 9 | | E292-16-20-60 | 2CCA704305R0001 | 503024 | 0.045 | 10 |
| 1CO | 250 | 0.32 | 9 | | E292-16-001-60 | 2CCA704307R0001 | 503000 | 0.045 | 10 |
| Central ON-OFF Control Module (with different control voltages) | | | | | | | | | |
| | | | 18 | 230VAC | E294/230-60 | 2TAZ352001R2013 | 504687 | 0.110 | 5 |
| | | | 18 | 24VAC | E294/24-60 | 2TAZ352001R2043 | 504694 | 0.109 | 5 |
| Permanent Signal Module | | | | | | | | | |
| | | | 9 | | E295-PS | 2TAZ312005R1003 | 939459 | 0.041 | 10 |
| Group Module | | | | | | | | | |
| | | | 18 | | E295-GM | 2TAZ310002R1000 | 939466 | 0.059 | 10 |
| Compensator | | | | | | | | | |
| | | | 18 | | E296-CP | 2TAZ310003R1000 | 939473 | 0.055 | 10 |
| Auxiliary Contact for Latching and Installation Relays (Rated current = 5 A) | | | | | | | | | |
| 1NO+1NC | 250 | 0.10 | 9 | | E299-11-60 | 2CCA704342R0001 | 503031 | 0.045 | 10 |
| 2NO | 250 | 0.10 | 9 | | E299-20-60 | 2CCA704343R0001 | 503048 | 0.045 | 10 |
| Intermediate piece (for heating dissipation – bag contains 5 items) | | | | | | | | | |
| | | | 18 | | ZLS725 | 2CCS500900R0181 | 100989 | 0.100 | 1 bag |
| | | | 9 | | ZLS726 | 2CCS400900R0091 | 104703 | 0.070 | 1 bag |

* with Bbn 7612271

NO = normally-open contact; NC = normally-closed contact; CO = changeover contact

Command and signaling

E297 Installation relay



E297

E297 Installation Relays

The E297 installation relay is an electromechanical switching device controlled by means of a continuous pulse. The coils have a low level of switching noise, are optimized for low power loss and therefore ensure safe and fault-free use in various applications. Either AC or DC control voltage can be applied. The installation relay is designed for a rated current of 16 A.

Standard number of contacts:

1 NO contact, 2 NO contacts or 1 NO contact + 1 NC contact

In addition, the number of main contacts can be increased to four contact lines using the snap-on E298 Main contact module so that three different groups of loads can be switched and controlled safely.

The various AC/DC coil voltages complete the comprehensive and interesting product range. The additional devices can be snapped onto the installation relay on the right side.

| Rated current = 16 A | | | | | | | | | |
|----------------------|----------------|------------|--------------------------------|-------------|----------------|-----------------|---------------|------------|---------------|
| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 | | Order details | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | EAN | Type code | | | | |
| 1NO | 0.50 | 18 | 8VAC | 940004 | E297-16-10/8 | 2TAZ311000R2061 | 0.113 | 10 | |
| | 0.50 | 18 | 12VAC | 940011 | E297-16-10/12 | 2TAZ311000R2051 | 0.113 | 10 | |
| | 0.50 | 18 | 24VAC/24VDC | 940028 | E297-16-10/24 | 2TAZ311000R2041 | 0.113 | 10 | |
| | 0.50 | 18 | 48VAC/48VDC | 940035 | E297-16-10/48 | 2TAZ311000R2031 | 0.113 | 10 | |
| | 0.50 | 18 | 115VAC/110VDC | 940042 | E297-16-10/115 | 2TAZ311000R2021 | 0.113 | 10 | |
| | 0.50 | 18 | 230VAC | 940059 | E297-16-10/230 | 2TAZ311000R2011 | 0.113 | 10 | |

| Rated current = 16 A | | | | | | | | | |
|----------------------|----------------|------------|--------------------------------|-------------|----------------|-----------------|---------------|------------|---------------|
| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 | | Order details | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | EAN | Type code | | | | |
| 1NO+1NC | 0.50 | 18 | 8VAC | 940066 | E297-16-11/8 | 2TAZ311000R2063 | 940066 | 0.121 | 10 |
| | 0.50 | 18 | 12VAC | 940073 | E297-16-11/12 | 2TAZ311000R2053 | 940073 | 0.121 | 10 |
| | 0.50 | 18 | 24VAC/24VDC | 940080 | E297-16-11/24 | 2TAZ311000R2043 | 940080 | 0.121 | 10 |
| | 0.50 | 18 | 48VAC/48VDC | 940097 | E297-16-11/48 | 2TAZ311000R2033 | 940097 | 0.121 | 10 |
| | 0.50 | 18 | 115VAC/110VDC | 940103 | E297-16-11/115 | 2TAZ311000R2023 | 940103 | 0.121 | 10 |
| | 0.50 | 18 | 230VAC | 940110 | E297-16-11/230 | 2TAZ311000R2013 | 940110 | 0.121 | 10 |

| Rated current = 16 A | | | | | | | | | |
|----------------------|----------------|------------|--------------------------------|-------------|----------------|-----------------|---------------|------------|---------------|
| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 | | Order details | Price 1 piece | Weight kg. | Pack unit pc. |
| | | | | EAN | Type code | | | | |
| 2NO | 1.00 | 18 | 8VAC | 940127 | E297-16-20/8 | 2TAZ311000R2062 | 0.121 | 10 | |
| | 1.00 | 18 | 12VAC | 940134 | E297-16-20/12 | 2TAZ311000R2052 | 0.121 | 10 | |
| | 1.00 | 18 | 24VAC/24VDC | 940141 | E297-16-20/24 | 2TAZ311000R2042 | 0.121 | 10 | |
| | 1.00 | 18 | 48VAC/48VDC | 940158 | E297-16-20/48 | 2TAZ311000R2032 | 0.121 | 10 | |
| | 1.00 | 18 | 115VAC/110VDC | 940165 | E297-16-20/115 | 2TAZ311000R2022 | 0.121 | 10 | |
| | 1.00 | 18 | 230VAC | 940172 | E297-16-20/230 | 2TAZ311000R2012 | 0.121 | 10 | |

Command and signaling

E297 Installation relay



E298



E299

Accessories for E297 Installation Relays

Accessories and additional devices for combinations with Installation Relays

Main Contact Module 16A

Rated current = 16 A

| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 EAN | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
|-----------------|-------------------|---------------|-----------------------------------|-----------------------|---------------|-----------------|------------------|---------------|------------------|
| | | | | | Type code | Order code | | | |
| 2NO | 0.64 | 9 | | 939961 | E298-16-20 | 2CCA704320R0001 | | 0.045 | 10 |
| 1NO+1NC | 0.32 | 9 | | 939954 | E298-16-11 | 2CCA704321R0001 | | 0.045 | 10 |
| 1CO | 0.32 | 9 | | 939978 | E298-16-001 | 2CCA704322R0001 | | 0.045 | 10 |

| Contact config. | Power loss [W] | Width [mm] | Coil control voltage [VAC/VDC] | Bbn 7612270 EAN | Order details | | Price 1 piece | Weight kg. | Pack unit pc. |
|-----------------|-------------------|---------------|-----------------------------------|-----------------------|---------------|------------|------------------|---------------|------------------|
| | | | | | Type code | Order code | | | |

Auxiliary Contact for Latching and Installation relays

Rated current = 5 A

| | | | | | | | | | |
|---------|------|---|--------|---------|---------|-----------------|--|-------|----|
| 1NO+1NC | 0.10 | 9 | 250VAC | 939985 | E299-11 | 2CCA704340R0001 | | 0.045 | 10 |
| 2NO | 0.10 | 9 | 250VAC | 465346* | E299-20 | 2CCA704341R0001 | | 0.045 | 10 |

* with Bbn 7612271

Intermediate piece (for heating dissipation - bag contains 5 items)

| | | | | | | | | | |
|--|--|----|--|--------|--------|-----------------|--|-------|-------|
| | | 18 | | 100989 | ZLS725 | 2CCS500900R0181 | | 0.100 | 1 bag |
| | | 9 | | 104703 | ZLS726 | 2CCS400900R0091 | | 0.070 | 1 bag |

Command and signaling

STD50 dimmers



STD 50



STD-EP

| Technical features | |
|--------------------------|-----------------|
| Rated voltage | 230 V ~ 50 Hz |
| Ambient temperature | 0 °C to + 35 °C |
| Interference suppression | CE |

STD50 dimmers for the control of lamps and ballast

Dimmer for brightness control of filament lamps , 230 V tungsten halogen lamps, Iv halogen lamps with conventional transformers (phase control)

| Description/ application | Power loss W | Bbn 4016779 EAN 02790 6 | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|-----------------------------|-----------------|----------------------------------|---------------|-----------------|------------------|-------------------------|---------------------|
| | | | Type code | Order code | | | |
| | 5 ① | | STD 50-3 | GHV0211370R0074 | | 0.155 | 1 |

Dimmer for brightness control of filament lamps , 230 V tungsten halogen lamps, Iv halogen lamps with ABB electronic transformers (reverse phase)

| Description/ application | Power loss W | Bbn 4016779 EAN 03300 8 | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|-----------------------------|-----------------|----------------------------------|---------------|-----------------|------------------|-------------------------|---------------------|
| | | | Type code | Order code | | | |
| | 4 ① | | STD 50-4 | GHV0211370R0075 | | 0.105 | 1 |

① power loss = 1% of connected load (4 or 5 W max)

Electronic potentiometer for electronic control gear with control input 0/1 - 10 V DC, control current 50 mA DC
Rated current (terminal 3 and 4) 4 A $\cos\phi = 0.9$; switching capacity 700 VA

| Description/ application | Power loss W | Bbn 4016779 EAN 27050 2 | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|-----------------------------|-----------------|----------------------------------|---------------|-----------------|------------------|-------------------------|---------------------|
| | | | Type code | Order code | | | |
| | 5 ② | | STD-EP | GHV0211370R0076 | | 0.073 | 1 |

Memory touch controller for electronic control gear
Rated voltage/switching output 4 A (~ 10 electronic control gear units)
 $\cos\phi = 0.9$; 3 A $\cos\phi = 0.5$, switching capacity 700 VA

| Description/ application | Power loss W | Bbn 4016779 EAN 27070 0 | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|---|-----------------|----------------------------------|---------------|-----------------|------------------|-------------------------|---------------------|
| | | | Type code | Order code | | | |
| for electronic control gear with control input 1 – 10 V DC control current 50 mA max. | 1 | | STD-MTS | GHV0210881R0004 | | 0.110 | 1 |

② power loss = 1% of connected load (7 W max)

Command and signaling

STD universal dimmer for phase control and reverse phase control



STD-500 U



STD-420 E



STD OCP, STD-OCD,
STD-OCT

| Technical features | | |
|--------------------------|-------|---|
| Rated voltage | | 230 V ~ ± 10%, 50/60 Hz |
| Rated current | STD U | 2.17 A |
| | STD E | 1.83 A |
| Max. connected load | U | 500 W/VA |
| | E | 420 W/VA |
| Power extension | | 1 U + max. 6 E/phase => max. 3 kVA |
| Min. connected load | STD U | 60 W/VA |
| | STD E | 200 W/VA |
| Max. line length | | 100m pushbutton cable, 2m data line |
| Interference suppression | | CE |
| Ambient temperature | | 0 ... + 45 °C, higher temperatures reduce the power |

Electronic protection against short circuit, overload, excessive temperature, automatic load recognition, soft-OFF function optional, memory function, minimum brightness control, visual overload indication.

Universal dimmer for phase control and reverse phase control

Universal dimmer STD-500 U and the connected power extension unit STD-420 E are suitable for the brightness control of:

- glow lamps
- 230 V halogen glow lamps
- lv halogen glow lamps with conventional transformer (phase control)
- electronic transformers for lv halogen glow lamps (reverse phase control) e.g.:
ABB ETR-70-230, 105-230, 150-230

The STD-500 U dimmer can be operated by one or more unlit pushbuttons (N- or L-controlled) or via a data line:

- EIB control element SB/S
- Powernet control element PSB

Power unit STD-420 E is used to boost the connected load and is controlled exclusively by the preset command of the STD-500 U dimmer. The parallel connection of the outputs of the universal high-performance dimmer and the pertaining power extensions (up to 6 units; connection with enclosed RJ 12 line cut to length) allow for a dimming power of 3,000 W/VA max at one load line.

Not suitable for dimming fluorescent lamps, transformers with current monitor and high-reactance transformers.

| Contacts | Power loss W | Bbn 4016779 EAN | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|--------------------------|-----------------|-----------------------|---------------|-----------------|------------------|-------------------|--------------|
| | | | Type code | Order code | | | |
| high-performance dimmer | 6 | 066928 | STD-500 U | GJB0006590A0178 | | | 1 |
| extension | 6 | 066935 | STD-420 E | GJB0006590A0179 | | | 1 |
| rotary operation element | – | 066980 | STD-OCD | GJB0006590A0183 | | | 1 |
| button operation element | – | 066959 | STD-OCP | GJB0006590A0181 | | | 1 |
| timer operation element | – | 070567 | STD-OCT | GJB0006590A0185 | | | 1 |

Note: Load and control cables must not be laid in one cable

Command and signaling

STD universal dimmer for phase control and reverse phase control

Plug-in operation elements:

- pushbutton operation element (STD-OCP)
- rotary operation element (STD-OCD)
- timer (STD-OCT)

Application

Remove dimmer cap and snap on operation element to provide for control of dimmer with central pushbutton or rotary operation. Local operation elements are still active. Apart from the manual local control feature, the timer also allows for time-programmed operations.

Basic timer functions:

- year time switch with 48 time programs
- optional with/without decentralized pushbutton control
- special programs: adjustable background brightness, cycle, display and emergency light, holiday program
- running reserve: 5 hours

The universal Master dimmer for LED retrofit Lamps. 6586-500

Product advantages

- Reliable and comfortable dimming of LED lamps
- Tuned to replacement lamps (retrofit LEDs)
- Brightness regulator downward compatible also suitable for conventional incandescent lamps, 230 V halogen lamps and low-voltage halogen lamps with conventional inductive and electronic transformers.
- Touch-dimmer with local operation
- Adjustable minimum / maximum brightness Staircase light function with automatic switch-off function and pre-warning function according to DIN 18015-2
- Perfect function and comfortable operation
- Harmonious and flicker-free dimming process
- No humming or buzzing due to transistor technology
- Numerous practical special functions
- Extremely compact construction as MDRC device (1 MW)



6586-500


Technical features

| | |
|---------------------|--|
| Max. connected load | 2 - 100 W/VA (Retrofit-LED-load). |
| Max. connected load | 10 - 200 W/VA (Non-LED-load). |
| Rated voltage | 230 V~, +10% / -10%, 50 Hz - 60 Hz |
| Ambient temperature | 0 °C bis 35 °C |
| Standards | IEC 60669-2-1, British Standard EN 60669-2-1 |

| | Bbn | Order details | | Price | Weight | Pack |
|--|---------|---------------|-------------|---------|---------|------|
| | 4011395 | | | 1 piece | 1 piece | unit |
| | EAN | Type code | Order code | | kg | pc. |
| | 208519 | 6586-500 | 6590-0-0191 | | | 1 |

Command & Signalling

Busch-Dimmer®

| Product | Article-No. | Order-No. | Pack/Qty | |
|---|--|-----------------|----------|--|
|  | Busch-Dimmer® ^{1) 2) 3) 4) 5)} MDRC, LED, 20-800 W Touch dimmer with local operation. Optimised for dimming of retrofit LED lamps (LEDi). For dimmable Retrofit-LEDs (LEDi). For dimmable Retrofit-LEDs (LEDi) with conventional or electronic transformers. For incandescent lamps, 230V tungsten halogen lamps and lowvoltage halogen lamps with conventional transformers or electronic transformers and dimmable halogen energy-saving lamps. Mix operaton of LEDi with conventional loads possible. With the following functions: memory, snooze, wake-up, children's room, central off, cleaning light and time function. For staircase lighting control with automatic switch-off and warning function according to DIN 18015-2. Supports the adherence to the energy saving ordinance (EnEV 2014). Low-noise level by MOSFET transistors. With electronic short-circuit protection. With electronic overload protection. With manually adjustable operating mode: trailing / leading edge control. With adjustable minimum/maximum brightness. With light value storage. Operation also possible via conventional push buttons (2020 US, 2021/6 UK). Extension unit input for short switching pulses (push-button) and continuous contact (switch/timer). Extension unit input designed as wide voltage input (8-230 V; AC/DC); galvanic isolation. Nominal voltage: 110 - 230 V, +10% / -10% Rated frequency: 50 Hz/60 Hz Nominal power: 20 - 300 W/VA (leading edge control in 230 V~ networks) Nominal power: 40 - 800 W/VA (trailing edge control in 230 V~ networks) Nominal power: 20 - 150 W/VA (leading edge control in 110/127 V~ networks) Nominal power: 40 - 400 W/VA (trailing edge control in 110/127 V~ networks) Rated voltage: 110 - 230 V, +10 % / -10 % Temperature range (Device): 0 °C to 35 °C Module width: 4 MW IEC 60669-2-1, British Standard EN 60669-2-1 | | | |
| grey | STD 6586/14 | 2CKA006590A0193 | 1 | |

¹⁾ Illumination of the push switch is only possible with N-conductor terminal.

²⁾ In case of electronic transformers, 5 % transformer losses.

³⁾ In the case of conventional transformers, take ~20% transformer loss into account.

⁴⁾ 1 MW = 18 mm.

⁵⁾ Recommendation: Please use loads and types of one producer..

Command and signaling

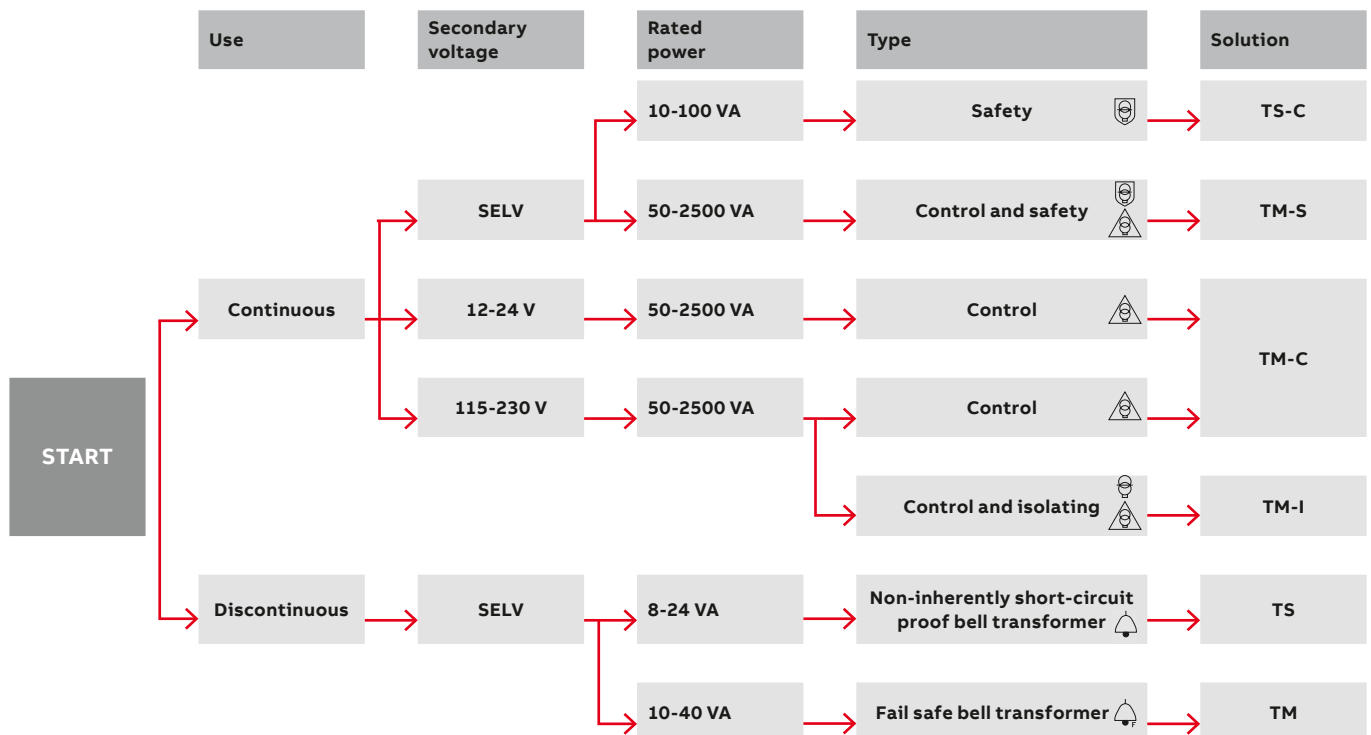
Transformers selection table

Bell transformers for discontinuous use







| | | |
|--|--|------------------------------------|
| Series | TM | TS |
| Reference standard | IEC EN 61558-2-8 | IEC EN 61558-2-8 |
| Classification | Fail safe | Non-inherently short-circuit proof |
| Thermal protection integrated in secondary | | ■ |
| Rated power | 10, 15, 30, 40 VA | 8, 16, 24 VA |
| Operation | Discontinuous | Discontinuous |
| Primary circuit voltage ratings | 230 V a.c. | 230 V a.c. |
| Secondary circuit characteristics | Double insulation between primary and secondary windings | ■ |
| | Full power on all outputs | ■ |
| | SELV secondary (no-load output voltage <50 V a.c.) | ■ |
| Dimensions | 2 modules [10, 15 VA] | 2 modules [8, 16 VA] |
| | 3 modules [30, 40 VA] | 3 modules [24 VA] |





① See page 6/58 for the choice of the protections.



Command and signaling

Transformers selection table

| Safety transformers for general use | Control transformers for general use | Control and Safety transformers for general use | Control and Isolating transformers for general use |
|---|---|---|---|
|  |  |  |  |
| TS-C | TM-C | TM-S | TM-I |
| IEC EN 61558-2-6 | CEI EN 61558-2-2 | CEI EN 61558-2-2 CEI EN 61558-2-6 | CEI EN 61558-2-2 CEI EN 61558-2-4 |
| Non-inherently short-circuit proof | Non-short-circuit proof control transformer a | Non-short-circuit-proof control and safety transformer a | Non-short-circuit-proof control and isolating transformer a |
| ■ | | | |
| 10, 16, 25, 40, 63, 100 VA | 50 to 2500 VA | 50 to 2500 VA | 50 to 2500 VA |
| Continuous | Continuous | Continuous | Continuous |
| 230 V a.c. | 230/400 V a.c. | 230/400V a.c. | 230/400 V a.c. |
| ■ | | ■ | ■ |
| ■ | ■ | ■ | ■ |
| ■ | | ■ | |
| 2 modules [10 VA] 3 modules [16 VA] 4 modules [25 VA, 40 VA] 5 modules [63 VA] 6 modules [100 VA] | See overall dimensions 13/60 | See overall dimensions 13/60 | See overall dimensions 13/60 |

| | | |
|---|---|---------------------------|
|  | Bell transformer | TM, TS |
| | Transformers for supplying extra low voltage, suitable for loads that require a discontinuous supply, in particular doorbells and chimes. The primary and secondary circuits are perfectly isolated and separated. Reference standard: IEC EN 61558-2-8 | |
|  | Control transformer | TM-C, TM-S*, TM-I* |
| | Transformer for supplying control circuits, for example commands, signaling, interlocks, etc. Reference standard: CEI EN 61558-2-2 | |
|  | Safety transformer | TS-C, TM-S* |
| | Isolation transformer for supplying safety extra low voltage circuits (<50 V on no load). Accidental contact with the secondary winding phases can be withstood without any danger. Reference standard: CEI EN 61558-2-6 | |
|  | Isolating transformer | TM-I* |
| | Transformer in which the primary and secondary windings are electrically separated by a double or reinforced insulation, to protect the circuit supplied by the secondary against hazards due to accidental simultaneous contact with earth and live parts, or grounded parts that may become live in the event of an insulation fault. Reference standard: CEI EN 61558-2-4 | |

* TM-S and TM-I both comply to two standards.

Command and signaling

Control, isolating and safety transformers selection table

| Selection table of products and secondary protections | | | | | | | | | | | |
|---|----------------------|-----------------|-----------|-----------------|-----------|------------------------|-----------|-------------------|----------|---------------------------|-----------|
| Primary protection: see in Chapter 6 of Electrical installation solutions for buildings - Technical details | | | | | | | | | | | |
| | | TM-C Control | | | | TM-S Control/Safety | | | | TM-I Control/Isolating | |
| Power VA | Secondary voltage | 12 V | 24 V | 115 V | 230 V | 12 V | 24 V | 24 V | 48 V | 115 V | 230 V |
| 50 | Transformer | 2CSM207113R0801 | | 2CSM207213R0801 | | 2CSM236893R0801 | | 2CSM204653R0801 ② | | 2CSM204583R0801 | |
| | Fuse gauge ① | 4 A | 2 A | 0.4 A | 0.2 A | 4 A | 2 A | 2 A | 1 A | 0.4 A | 0.2 A |
| 100 | Transformer | 2CSM207103R0801 | | 2CSM236933R0801 | | 2CSM207163R0801 | | 2CSM204643R0801 | | 2CSM201123R0801 | |
| | Fuse gauge ① | 8 A | 4 A | 0.8 A | 0.4 A | 8 A | 4 A | 4 A | 2 A | 0.8 A | 0.4 A |
| | Breaker type | S202 C8 | S202 C4 | S202 C1 | S202 C0,5 | S202 C8 | S202 C4 | S202 C4 | S202 C2 | S202 C1 | S202 C0,5 |
| 160 | Transformer | 2CSM236853R0801 | | 2CSM207203R0801 | | 2CSM202073R0801 | | 2CSM204633R0801 | | 2CSM204533R0801 | |
| | Fuse gauge ① | 12 A | 6.3 A | 1.25 A | 0.63 A | 12 A | 6,3 A | 6.3 A | 3.15 A | 1.25 A | 0.63 A |
| | Breaker type | S202 C13 | S202 C8 | S202 C1.6 | S202 C- | S202 C13 | S202 C8 | S202 C8 | S202 C4 | S202 C1.6 | - |
| 200 | Transformer | 2CSM236823R0801 | | 2CSM236883R0801 | | 2CSM260043R0801 | | | | 2CSM204513R0801 | |
| | Fuse gauge ① | 16 A | 8 A | 1.6 A | 0.8 A | 16 A | 8 A | | | 1.6 A | 0.8 A |
| | Breaker type | S202 C16 | S202 C8 | S202 C2 | S202 C1 | S202 C16 | S202 C8 | | | S202 C2 | S202 C1 |
| 250 | Transformer | 2CSM207093R0801 | | 2CSM236923R0801 | | 2CSM260063R0801 | | 2CSM204673R0801 | | 2CSM204493R0801 | |
| | Fuse gauge ① | 20 A | 10 A | 2 A | 1 A | 20 A | 10 A | 10 A | 5 A | 2 A | 1 A |
| | Breaker type | S202 C20 | S202 C10 | S202 C2 | S202 C1 | S202 C20 | S202 C10 | S202 C10 | S202 C6 | S202 C2 | S202 C1 |
| 320 | Transformer | 2CSM236843R0801 | | 2CSM236923R0801 | | 2CSM260063R0801 | | 2CSM204673R0801 | | 2CSM204493R0801 | |
| | Fuse gauge ① | 25 A | 12 A | 2.5 A | 1.25 A | 25 A | 12 A | 12 A | 6.3 A | 2.5 A | 1.25 A |
| | Breaker type | S202 C25 | S202 C13 | S202 C3 | S202 C1,6 | S202 C25 | S202 C13 | S202 C13 | S202 C8 | S202 C3 | S202 C1,6 |
| 400 | Transformer | 2CSM289703R0801 | | 2CSM207193R0801 | | 2CSM260103R0801 | | 2CSM204613R0801 | | 2CSM201073R0801 | |
| | Fuse gauge ① | 32 A | 16 A | 3.15 A | 1.6 A | 32 A | 16 A | 16 A | 8 A | 3.15 A | 1.6 A |
| | Breaker type | S202 C32 | S202 C16 | S202 C4 | S202 C2 | S202 C32 | S202 C16 | S202 C16 | S202 C8 | S202 C4 | S202 C2 |
| 630 | Transformer | 2CSM236813R0801 | | 2CSM207183R0801 | | 2CSM260053R0801 | | 2CSM204603R0801 | | 2CSM204423R0801 | |
| | Fuse gauge ① | 50 A | 25 A | 5 A | 2.5 A | 50 A | 25 A | 25 A | 12 A | 5 A | 2.5 A |
| | Breaker type | S202 C50 | S202 C25 | S202 C6 | S202 C3 | S202 C50 | S202 C25 | S202 C25 | S202 C13 | S202 C6 | S202 C3 |
| 1000 | Transformer | 2CSM292873R0801 | | 2CSM236913R0801 | | 2CSM260093R0801 | | | | 2CSM204413R0801 | |
| | Fuse gauge ① | 80 A | 40 A | 8 A | 4 A | 80 A | 40 A | | | 8 A | 4 A |
| | Breaker type | S292 C80 | S202 C40 | S202 C8 | S202 C4 | S292 C80 | S202 C40 | | | S202 C8 | S202 C4 |
| 1600 | Transformer | 2CSM292863R0801 | | 2CSM201813R0801 | | 2CSM260083R0801 | | | | 2CSM204403R0801 | |
| | Fuse gauge ① | 125 A | 63 A | 16 A | 8 A | 125 A | 63 A | | | 16 A | 8 A |
| | Breaker type | S292 C125 | S202 C63 | S202 C16 | S202 C8 | S292 C125 | S202 C63 | | | S202 C16 | S202 C8 |
| 2000 | Transformer | 2CSM292853R0801 | | 2CSM236903R0801 | | 2CSM260073R0801 | | | | 2CSM204383R0801 | |
| | Fuse gauge ① | 160 A | 80 A | 16 A | 8 A | 160 A | 80 A | | | 16 A | 8 A |
| | Breaker type | - | S292 C80 | S202 C20 | S202 C10 | - | S292 C80 | | | S202 C20 | S202 C10 |
| 2500 | Transformer | 2CSM236943R0801 | | 2CSM207173R0801 | | 2CSM204663R0801 | | | | 2CSM204363R0801 | |
| | Fuse gauge ① | 200 A | 100 A | 20 A | 10 A | 200 A | 100 A | | | 20 A | 10 A |
| | Breaker type | - | S292 C100 | S202 C25 | S202 C13 | - | S292 C100 | | | S202 C25 | S202 C13 |

① FUSES

- Gauge ≤ 6.3 A use aM fuses with high breaking capacity and IEC601264-compliant
- Gauge > 6.3 A use gG fuses IEC60269-2 or IEC60269-3-compliant

② TM-S 50/24-48 P complies with IEC EN 61558-2-4 on the secondary circuit at 48 V and with IEC EN 61558-2-6 on the secondary circuit at 24 V

Command and signaling

TM-C, TM-S, TM-I control, isolating and safety transformers



TM

| Technical characteristics | | TM-C | TM-S | TM-I |
|---|--------------------|-------------------------------------|--------------------------------------|--------------------------------------|
| Rated primary voltage Un | [V] | 230/400 a.c. | 230/400 a.c. | 230/400 a.c. |
| Primary voltage adjustment outlets ± 15 V | | No | Yes | Yes |
| Max ambient temperature ③ | [°C] | 40 | 40 | 40 |
| Rated secondary voltage Un | [V] | 12-24, 115-230 a.c. | 12-24, 24-48 a.c. b | 115-230 a.c. |
| Rated frequency | [Hz] | 50/60 | 50/60 | 50/60 |
| Isolation voltage between primary and secondary | [kV] | 3.5 | 4.8 | 4.8 |
| Class of insulation system | | class F | class F | class F |
| Rated powers | [VA] | 50-2500 | 50-2500 | 50-2500 |
| Primary cable section (\emptyset max) | [mm ²] | 6 | 6 | 6 |
| Operating temperature | [°C] | ① | ① | ① |
| Protection degree | | IP00 | IP00 | IP00 |
| Approvals | | ENEC (Up to 1000 VA), UR, CSA, RINA | ENEC (Up to 1000 VA), UR, CSA | ENEC (Up to 1000 VA), UR, CSA |
| Standards | | CEI EN 61558-2-2 | CEI EN 61558-2-2 CEI EN 61558-2-6 | CEI EN 61558-2-2 CEI EN 61558-2-6 |

① See technical details

② TM-S 50/24-48 P complies to CEI EN 61558-2-4 on the 48 V secondary and to CEI EN 61558-2-6 on the 24 V secondary

③ Maximum temperature without any power draw. See technical details for power draw according to temperature.

Command and signaling

TM-C, TM-S, TM-I control, isolating and safety transformers



TM-I

TM-C control transformer

Transformer for supplying control circuits, for example commands, signaling, interlocks, etc. Reference standard: CEI EN 61558-2-2.

TM-S safety transformer

Isolation transformer for supplying safety extra low voltage circuits (<50 V on no load). Accidental contact with the secondary winding phases can be withstood without any danger. Reference standard: CEI EN 61558-2-6



TM-S

TM-I isolating transformer

Transformer in which the primary and secondary windings are electrically separated by a double or reinforced insulation, to protect the circuit supplied by the secondary against hazards due to accidental simultaneous contact with earth and live parts, or grounded parts that may become live in the event of an insulation fault.

Reference standard: CEI EN 61558-2-4



TM-C

Since TM-C, TM-S and TM-I transformers are not provided with built-in protection, they must therefore be protected according with these rules:

- Primary: line protection must reach or exceed the recommended value in Chapter 6 of Electrical installation solutions for buildings - Technical details. This device guarantees line protection and service continuity but doesn't protect the transformer.
- Secondary: transformer protection must be chosen according to tables in the previous pages. This device protect the transformer.



TM-C

TM-C single phase control transformers, primary 230-400 V

| Rated power VA | Secondary voltage V a.c. | Bbn 8012542 EAN | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|-------------------|--------------------------------|-----------------------|-------------------|-----------------|------------------|-------------------------|---------------------|
| | | | Type code | Order code | | | |
| 50 | 12-24 | 071136 | TM-C 50/12-24 | 2CSM207113R0801 | | 1.1 | 1 |
| 100 | 12-24 | 071037 | TM-C 100/12-24 | 2CSM207103R0801 | | 2 | 1 |
| 160 | 12-24 | 368533 | TM-C 160/12-24 | 2CSM236853R0801 | | 3 | 1 |
| 200 | 12-24 | 368236 | TM-C 200/12-24 | 2CSM236823R0801 | | 3.2 | 1 |
| 250 | 12-24 | 070931 | TM-C 250/12-24 | 2CSM207093R0801 | | 3.6 | 1 |
| 320 | 12-24 | 368434 | TM-C 320/12-24 | 2CSM236843R0801 | | 4.4 | 1 |
| 400 | 12-24 | 897033 | TM-C 400/12-24 | 2CSM289703R0801 | | 5.5 | 1 |
| 630 | 12-24 | 368137 | TM-C 630/12-24 | 2CSM236813R0801 | | 7.8 | 1 |
| 1000 | 12-24 | 928737 | TM-C 1000/12-24 | 2CSM292873R0801 | | 13.2 | 1 |
| 1600 | 12-24 | 928638 | TM-C 1600/12-24 | 2CSM292863R0801 | | 21.2 | 1 |
| 2000 | 12-24 | 928539 | TM-C 2000/12-24 | 2CSM292853R0801 | | 25.5 | 1 |
| 2500 | 12-24 | 369431 | TM-C 2500/12-24 | 2CSM236943R0801 | | 26.8 | 1 |
| 50 | 115-230 | 072133 | TM-C 50/115-230 | 2CSM207213R0801 | | 1.1 | 1 |
| 100 | 115-230 | 369332 | TM-C 100/115-230 | 2CSM236933R0801 | | 2 | 1 |
| 160 | 115-230 | 072034 | TM-C 160/115-230 | 2CSM207203R0801 | | 3 | 1 |
| 200 | 115-230 | 368830 | TM-C 200/115-230 | 2CSM236883R0801 | | 3.2 | 1 |
| 250 | 115-230 | 071532 | TM-C 250/115-230 | 2CSM207153R0801 | | 3.6 | 1 |
| 320 | 115-230 | 369233 | TM-C 320/115-230 | 2CSM236923R0801 | | 4.4 | 1 |
| 400 | 115-230 | 071938 | TM-C 400/115-230 | 2CSM207193R0801 | | 5.5 | 1 |
| 630 | 115-230 | 071839 | TM-C 630/115-230 | 2CSM207183R0801 | | 7.8 | 1 |
| 1000 | 115-230 | 369134 | TM-C 1000/115-230 | 2CSM236913R0801 | | 13.2 | 1 |
| 1600 | 115-230 | 018131 | TM-C 1600/115-230 | 2CSM201813R0801 | | 21.2 | 1 |
| 2000 | 115-230 | 369035 | TM-C 2000/115-230 | 2CSM236903R0801 | | 25.5 | 1 |
| 2500 | 115-230 | 071730 | TM-C 2500/115-230 | 2CSM207173R0801 | | 26.8 | 1 |

Command and signaling

TM-C, TM-S, TM-I control, isolating and safety transformers

| TM-S single phase control and safety transformers, primary 230-400 V ±15 | | | | | | | |
|--|-------------------|-------------|-------------------|-----------------|---------------|----------------|-----------|
| Rated power | Secondary voltage | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| VA | V a.c. | EAN | Type code | Order code | | kg | pc. |
| 50 | 12-24 | 368939 | TM-S 50/12-24 P | 2CSM236893R0801 | | 1.1 | 1 |
| 100 | 12-24 | 071631 | TM-S 100/12-24 P | 2CSM207163R0801 | | 2 | 1 |
| 160 | 12-24 | 020738 | TM-S 160/12-24 P | 2CSM202073R0801 | | 3 | 1 |
| 200 | 12-24 | 600435 | TM-S 200/12-24 P | 2CSM260043R0801 | | 3.2 | 1 |
| 250 | 12-24 | 601135 | TM-S 250/12-24 P | 2CSM260113R0801 | | 3.6 | 1 |
| 320 | 12-24 | 600633 | TM-S 320/12-24 P | 2CSM260063R0801 | | 4.4 | 1 |
| 400 | 12-24 | 601036 | TM-S 400/12-24 P | 2CSM260103R0801 | | 5.5 | 1 |
| 630 | 12-24 | 600534 | TM-S 630/12-24 P | 2CSM260053R0801 | | 7.8 | 1 |
| 1000 | 12-24 | 600930 | TM-S 1000/12-24 P | 2CSM260093R0801 | | 13.2 | 1 |
| 1600 | 12-24 | 600831 | TM-S 1600/12-24 P | 2CSM260083R0801 | | 21.2 | 1 |
| 2000 | 12-24 | 600732 | TM-S 2000/12-24 P | 2CSM260073R0801 | | 25.5 | 1 |
| 2500 | 12-24 | 046639 | TM-S 2500/12-24 P | 2CSM204663R0801 | | 26.8 | 1 |
| 50 | 24-48 | 046530 | TM-S 50/24-48 P | 2CSM204653R0801 | | 1.1 | 1 |
| 100 | 24-48 | 046431 | TM-S 100/24-48 P | 2CSM204643R0801 | | 2 | 1 |
| 160 | 24-48 | 046332 | TM-S 160/24-48 P | 2CSM204633R0801 | | 3 | 1 |
| 250 | 24-48 | 046837 | TM-S 250/24-48 P | 2CSM204683R0801 | | 3.2 | 1 |
| 320 | 24-48 | 046738 | TM-S 320/24-48 P | 2CSM204673R0801 | | 3.6 | 1 |
| 400 | 24-48 | 046134 | TM-S 400/24-48 P | 2CSM204613R0801 | | 4.4 | 1 |
| 630 | 24-48 | 046035 | TM-S 630/24-48 P | 2CSM204603R0801 | | 5.5 | 1 |

| TM-I single phase control and isolating transformers, primary 230-400 V ±15 | | | | | | | |
|---|-------------------|-------------|---------------------|-----------------|---------------|----------------|-----------|
| Rated power | Secondary voltage | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| VA | V a.c. | EAN | Type code | Order code | | kg | pc. |
| 50 | 115-230 | 045830 | TM-I 50/115-230 P | 2CSM204583R0801 | | 1.1 | 1 |
| 100 | 115-230 | 011231 | TM-I 100/115-230 P | 2CSM201123R0801 | | 2 | 1 |
| 160 | 115-230 | 045335 | TM-I 160/115-230 P | 2CSM204533R0801 | | 3 | 1 |
| 200 | 115-230 | 045137 | TM-I 200/115-230 P | 2CSM204513R0801 | | 3.2 | 1 |
| 250 | 115-230 | 045038 | TM-I 250/115-230 P | 2CSM204503R0801 | | 3.6 | 1 |
| 320 | 115-230 | 044932 | TM-I 320/115-230 P | 2CSM204493R0801 | | 4.4 | 1 |
| 400 | 115-230 | 010739 | TM-I 400/115-230 P | 2CSM201073R0801 | | 5.5 | 1 |
| 630 | 115-230 | 044239 | TM-I 630/115-230 P | 2CSM204423R0801 | | 7.8 | 1 |
| 1000 | 115-230 | 044130 | TM-I 1000/115-230 P | 2CSM204413R0801 | | 13.2 | 1 |
| 1600 | 115-230 | 044031 | TM-I 1600/115-230 P | 2CSM204403R0801 | | 21.2 | 1 |
| 2000 | 115-230 | 043836 | TM-I 2000/115-230 P | 2CSM204383R0801 | | 25.5 | 1 |
| 2500 | 115-230 | 043638 | TM-I 2500/115-230 P | 2CSM204363R0801 | | 26.8 | 1 |

| Accessories | | | | | | | |
|--|--|-------------|---------------|-----------------|---------------|----------------|-----------|
| | | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| | | EAN | Type code | Order code | | kg | pc. |
| Mounting bracket for DIN rail (up to 160 VA) | | 010333 | TM-C-DIN | 2CSM201033R0801 | | 0.10 | 10 |

Command and signaling


TS-C safety isolating transformers for general use



TS 25 C



TS 100 C

| TS-C | | TS 10 C | TS 16 C | TS 25 C | TS 40 C | TS 63 C | TS 100 C |
|--|------------------------|--|----------------|----------------|----------------|----------------|----------------|
| Primary rated voltage Un | [V] | 230 a.c. | 230 a.c. | 230 a.c. | 230 a.c. | 230 a.c. | 230 a.c. |
| Secondary rated voltage Un | [V] | 12 - 24 V a.c. | 12 - 24 V a.c. | 12 - 24 V a.c. | 12 - 24 V a.c. | 12 - 24 V a.c. | 12 - 24 V a.c. |
| Tolerance on secondary voltage (full load) | [%] | < +/- 5% (according to standards) | | | | | |
| Tolerance on secondary voltage (off load) | [%] | <100% rated secondary voltage (according to standards) | | | | | |
| Rated frequency | [Hz] | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| Rated power (continuous use) | [VA] | 10 | 16 | 25 | 40 | 63 | 100 |
| Maximum output current (at 24 V) | [A] | 0.42 | 0.67 | 1.04 | 1.67 | 2.63 | 4.17 |
| Power loss (off load) | [W] | < 2.5 | < 3 | < 4 | < 4.5 | < 4.5 | < 1 |
| Power loss (full load) | [W] | < 5 | < 5 | < 5 | < 10 | < 15 | < 20 |
| Class of insulation system | | Class B (corresponding to maximum 120 °C) | | | | | |
| Modules | [No.] | 2 | 3 | 4 | 4 | 5 | 6 |
| Cable section | [mm ² -AWG] | 2.5 | | | | | |
| Tightening torque | [Nm] | 0.5 | | | | | |
| Protection degree | | IP 20 | | | | | |
| Standards | | IEC/EN 61558-2-6 | | | | | |
| Approvals | |  | | | | | |

TS-C safety isolating transformers for general use

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. These devices take up very little space, from 2-module size for the 10 VA version up to 6-module size for the 100 VA version.

| Rated power (continuous) | Secondary rated voltage | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|--------------------------|-------------------------|-------------|----------------|-----------------|---------------|----------------|-----------|
| VA | V | EAN | Type code | Order code | | kg | pc. |
| 10 | 12-24 | 285557 | TS 10/12-24 C | 2CSM228555R0812 | | 0.35 | 1 |
| 16 | 12-24 | 285656 | TS 16/12-24 C | 2CSM228565R0812 | | 0.45 | 1 |
| 25 | 12-24 | 928508 | TS 25/12-24 C | 2CSM251043R0811 | | 0.92 | 1 |
| 40 | 12-24 | 928607 | TS 40/12-24 C | 2CSM401043R0811 | | 1.1 | 1 |
| 63 | 12-24 | 928706 | TS 63/12-24 C | 2CSM631043R0811 | | 1.15 | 1 |
| 100 | 12-24 | 285755 | TS 100/12-24 C | 2CSM228575R0812 | | 1.45 | 1 |

Command and signaling



TM bell transformers



TM 15/12



TM 40/12

| Technical characteristics | | |
|--|------------------------|--|
| Primary rated voltage Un | [V] | 230 a.c. |
| Secondary rated voltage Un | [V] | 4, 8, 12, 24 |
| Tolerance on secondary voltage (with load) | [%] | +/- 15% (according to standards) |
| Rated frequency | [Hz] | 50/60 |
| Rated power (discontinuous use) | [VA] | 10, 15, 30, 40 |
| Power loss (off load) | [W] | <2.5 (TM10, TM15), <3 (TM30, TM40), <1.25 (TM15 ES) |
| Modules | [No.] | 2 (TM10, TM15), 3 (TM30, TM40) |
| Cable section | [mm ² -AWG] | 2.5 - 14 |
| Tightening torque | [Nm] | 0.5 |
| Protection degree | | IP 20 |
| Standards | | IEC/EN 61558-2-8 |
| Approvals | |   |

TM fail safe bell transformers

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. In addition, the Energy Saving TM-ES version allows reducing power losses by 50%.

| Maximum rated power a (discontinuous) VA | Secondary voltage rating V c.a. | Bbn 8012542 EAN | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|---|------------------------------------|--------------------|---------------|-----------------|------------------|-------------------------|---------------------|
| | | | Type code | Order code | | | |
| 10 | 4-8-12 | 287155 | TM10/12 | 2CSM228715R0802 | | 0.30 | 6 |
| 10 | 12-24 | 287254 | TM10/24 | 2CSM228725R0802 | | 0.30 | 6 |
| 15 | 4-8-12 | 287353 | TM15/12 | 2CSM228735R0802 | | 0.30 | 6 |
| 15 | 12-24 | 287452 | TM15/24 | 2CSM228745R0802 | | 0.30 | 6 |
| 15 | 4-8-12 | 285854 | TM15/12 ES | 2CSM228585R0802 | | 0.30 | 1 |
| 30 | 4-8-12 | 287551 | TM30/12 | 2CSM228755R0802 | | 0.45 | 4 |
| 30 | 12-24 | 287650 | TM30/24 | 2CSM228765R0802 | | 0.45 | 4 |
| 40 | 4-8-12 | 287759 | TM40/12 | 2CSM228775R0802 | | 0.45 | 4 |
| 40 | 12-24 | 287858 | TM40/24 | 2CSM228785R0802 | | 0.45 | 4 |

① See diagrams below for the RMS power on each secondary output

Command and signaling

TS bell transformers




TS 8/8



TS 8/12 SW



TS 24/8-12-24

| Technical characteristics | | |
|--|------------------------|--|
| Primary rated voltage Un | [V] | 230 a.c. |
| Secondary rated voltage Un | [V] | 4, 6, 8, 12, 24 |
| Tolerance on secondary voltage (with load) | [%] | ± 15% (according to standards) |
| Rated frequency | [Hz] | 50/60 |
| Rated power (discontinuous use) | [VA] | 8, 16, 24 |
| Power loss (off load) | [W] | <2.5 (TS8, TS16), <3 (TS24), <0.8 (TS8/8 ES), <1.2 (TS16/8-12 ES) |
| Class of insulation system | | class B |
| Modules | [No.] | 2 (TS8, TS16), 3 (TS24) |
| Cable section | [mm ² -AWG] | 2.5 - 14 |
| Tightening torque | [Nm] | 0.5 |
| Protection degree | | IP 20 |
| Standards | | IEC/EN 61558-2-8 |
| Approvals | |  |

TS non-inherently short-circuit proof bell transformers

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). The TS range is extended with the Energy Saving TS-ES series, which allows reducing power losses by 50%, and the TS8/SW series, that is equipped with a switch for controlling loads connected to the secondary.

| Maximum rated power a (discont.) VA | Secondary voltage rating V c.a. | Switch 0-1 | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|-------------------------------------|---------------------------------|------------|-------------|---------------|-----------------|---------------|-------------------|---------------|
| | | | | EAN | Type code | | | |
| 8 | 8 | | 285953 | TS8/8 ES | 2CSM228595R0812 | 0.35 | 1 | |
| 8 | 8 | | 286653 | TS8/8 | 2CSM228665R0812 | 0.35 | 6 | |
| 8 | 12 | | 286851 | TS8/12 | 2CSM228685R0812 | 0.35 | 6 | |
| 8 | 24 | | 286752 | TS8/24 | 2CSM228675R0812 | 0.35 | 6 | |
| 8 | 8 | ■ | 368304 | TS8/8 SW | 2CSM081302R0811 | 0.35 | 6 | |
| 8 | 12 | ■ | 368403 | TS8/12 SW | 2CSM081402R0811 | 0.35 | 6 | |
| 8 | 4-6-8 | ■ | 368601 | TS8/4-6-8 SW | 2CSM081012R0811 | 0.35 | 6 | |
| 8 | 4-8-12 | ■ | 368700 | TS8/4-8-12 SW | 2CSM081022R0811 | 0.35 | 6 | |
| 16 | 8-12 | | 286059 | TS16/8-12 ES | 2CSM228605R0812 | 0.35 | 1 | |
| 16 | 8 | | 286455 | TS16/8 | 2CSM228645R0812 | 0.35 | 6 | |
| 16 | 12 | | 286356 | TS16/12 | 2CSM228635R0812 | 0.35 | 6 | |
| 16 | 24 | | 286158 | TS16/24 | 2CSM228615R0812 | 0.35 | 6 | |
| 16 | 4-6-8 | | 286554 | TS16/4-6-8 | 2CSM228655R0812 | 0.35 | 6 | |
| 16 | 4-8-12 | | 286257 | TS16/4-8-12 | 2CSM228625R0812 | 0.35 | 6 | |
| 24 | 4-8-12 | | 287056 | TS24/4-8-12 | 2CSM228705R0812 | 0.45 | 4 | |
| 24 | 8-12-24 | | 286950 | TS24/8-12-24 | 2CSM228695R0812 | 0.45 | 4 | |

① See diagrams below for the rms power on each secondary output

Command and signaling

RI, BR, TSM, TSR bells and buzzers



TSM



RI230

| Technical characteristics | | RI12, BR12 | RI230, BR230 | TSM, TSR |
|------------------------------|---|-------------------|-------------------|--------------------------|
| Rated Voltage U _n | [V c.a.] | 12 | 230 | 230 |
| Rated frequency | [Hz] | 50/60 | 50/60 | 50 |
| Power consumption | [VA] | 4 | 6 | 5,5 |
| Sound level | Bell [dB] | 80 ⁽¹⁾ | 80 ⁽¹⁾ | 80 ⁽²⁾ |
| | Buzzer [dB] | 70 ⁽¹⁾ | 70 ⁽¹⁾ | 70 ⁽²⁾ |
| | Three-tones [dB] | | | 84 ⁽²⁾ |
| Max permanent working time | max 15 sec., after a rest time last 60 sec. | | | TSM: 1 min TSR: 5 min |
| Type of sound signal | | D | D | |
| Duration of operation | | discontinuous | discontinuous | discontinuous |
| Max cable cross-section | [mm ²] | 4 | 4 | 10 |
| Mounting position | | flexible | flexible | vertical only |
| Protection degree | | IP20 | IP20 | IP20-IP40 |
| Modules (18 mm) | [No.] | 1 | 1 | 2 |
| Standard | | EN 62080 | EN 62080 | EN 62080 |

⁽¹⁾ at 0.6 meter distance

⁽²⁾ at 1 meter distance

Bells and buzzers

The range of bell and buzzer includes modular versions as 12V or 230V types for acoustic signaling in residential and commercial sectors as well as industry application such as 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.

| RI electro-mechanical modular bells | | | | | | |
|-------------------------------------|---------|---------------|-----------------|---------|---------|-----------|
| Rated voltage | Bbn | Order details | | Price | Weight | Pack unit |
| | 8012542 | | | 1 piece | 1 piece | |
| V AC | EAN | Type code | Order code | kg | pc. | |
| 12 | 258810 | RI12 | 2CSM232345R0821 | 0.081 | 10 | |
| 230 | 258919 | RI230 | 2CSM232335R0821 | 0.083 | 10 | |

| BR electro-mechanical modular buzzers | | | | | | |
|---------------------------------------|---------|---------------|-----------------|---------|---------|-----------|
| Rated voltage | Bbn | Order details | | Price | Weight | Pack unit |
| | 8012542 | | | 1 piece | 1 piece | |
| V AC | EAN | Type code | Order code | kg | pc. | |
| 12 | 273813 | BR12 | 2CSM232365R0821 | 0.075 | 10 | |
| 230 | 258711 | BR230 | 2CSM232355R0821 | 0.077 | 10 | |

Command and signaling

SM, RM, TSM, TSR bells and buzzers



TSR

| TSM modular electronic bell (two-tones) + transformer included | | | | | | | |
|--|---------------|----------------|---------------|-----------------|------------------|-------------------|--------------|
| Rated voltage | Use | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| V AC | | EAN | Type code | Order code | | kg | pc. |
| 230 | Discontinuous | 007005 | TSM | 2CSM100000R0841 | | 0.300 | 6 |

| TSR bell + buzzer + transformer included | | | | | | | |
|--|---------------|----------------|---------------|-----------------|------------------|-------------------|--------------|
| Rated voltage | Use | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
| V AC | | EAN | Type code | Order code | | kg | pc. |
| 230 | Discontinuous | 369608 | TSR | 2CSM100000R0831 | | 0.300 | 1 |

Command and signaling

CP-D primary switch mode power supplies



CP-D 12/0.83,
CP-D 24/0.42



CP-D 12/2.1
CP-D 24/1.3



CP-D 24/2.5



CP-D 24/4.2

Description

The CP-D range of modular power supply units in MDRC design (modular DIN rail components) is ideally suited for installation in distribution panels. This range offers devices with output voltages of 12 V DC and 24 V DC at output currents of 0.42 A to 4.2 A. Thanks to their high thermal efficiency, these power supplies have very low power and heat dissipation and can be operated without forced cooling. All power supply units in the CP-D range are approved according to all relevant international standards.

Technical characteristics

- Output voltages: 12 V, 24 V DC
- Adjustable output voltages (devices > 10 W)
- Output currents: 0.42 A / 0.83 A / 1.3 A / 2.1 A / 2.5 A / 4.2 A
- Power range: 10 W, 25 W, 30 W, 60 W, 100 W
- Wide range input: 100-240 V AC (90-264 V AC, 120-375 V DC)
- High efficiency of up to 89 %
- Low power dissipation and low heating
- Free convection cooling (no forced cooling with ventilators)
- Ambient temperature range during operation: -40...+70 °C
- Open-circuit, overload and short-circuit stable
- Integrated input fuse
- LEDs for status indication
- Light-grey housing in RAL 7035
- Various approvals and marks

| Rated input voltage | Rated output voltage/current | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|---------------------|------------------------------|-----|---------------|-----------------|---------------|----------------|-----------|
| V | V / A | EAN | Type code | Order code | | kg (lb.) | pc. |
| 100-240 V AC | 12 V DC / 0.83 A | | CP-D 12/0.83 | 1SVR427041R1000 | | 0.06/0.13 | 1 |
| 100-240 V AC | 12 V DC / 2.1 A | | CP-D 12/2.1 | 1SVR427043R1200 | | 0.19/0.41 | 1 |
| 100-240 V AC | 24 V DC / 0.42 A | | CP-D 24/0.42 | 1SVR427041R0000 | | 0.06/0.13 | 1 |
| 100-240 V AC | 24 V DC / 1.3 A | | CP-D 24/1.3 | 1SVR427043R0100 | | 0.19/0.41 | 1 |
| 100-240 V AC | 24 V DC / 2.5 A | | CP-D 24/2.5 | 1SVR427044R0200 | | 0.25/0.56 | 1 |
| 100-240 V AC | 24 V DC / 4.2 A | | CP-D 24/4.2 | 1SVR427045R0400 | | 0.32/0.71 | 1 |

CP-D RU for decoupling of two CP-D power supply units


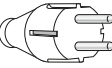
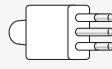
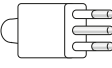
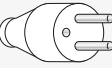
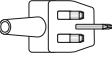

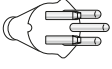
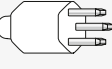
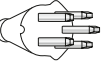
| Input voltage range | Rated input current | Rated output voltage/current | Bbn | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|---------------------|---------------------|------------------------------|-----|---------------|-----------------|---------------|------------------|-----------|
| V | A | V / A | EAN | Type code | Order code | | kg (lb.) | pc. |
| 9-35 V DC | 2 x 5 A | 24 V DC / 1 x 10 A | | CP-D RU | 1SVR427049R0000 | | 0.075 / 0.165 | 1 |

Command and signaling

Modular sockets selection table

Series selection

For further information about sockets selection by country please see in Chapter 6 of Electrical installation solutions for buildings - Technical details

| | | M1175 | M1173 | M1170 | M1174 | M1363 | M1011 | |
|---|--------------------|---------------------------------|---------------------------------|---------------------------------|-------|-------|-------|---|
|  | EU 10A | ■ | ■ | ■ | ■ | | ■ | |
|  | Schuko 10 A / 16 A | ■ | ■ | ■ | | | | |
|  | Italian 10 A | | ■ | ■ | | | | |
|  | Italian 16 A | | | ■ | | | | |
|  | French 10 A / 16 A | Pluggable but not earthed | Pluggable but not earthed | Pluggable but not earthed | ■ | | | |
|  | British 13 A | | | | | ■ | | |
|  | Swiss | | | | | | ■ | |
|  | | | | | | | ■ | |
|  | | | | | | | | ■ |
|  | | | | | | | | ■ |


Command and signaling



Modular sockets selection table




Model selection



■ RAL 7035

German Schuko Standard


| | | | |
|---|-------|--|-----------------|
|  | M1175 | | 2CSM210000R0721 |
|---|-------|--|-----------------|



| | | | |
|---|---------|--|-----------------|
|  | M1175-L |  Indicator light | 2CSM212000R0721 |
|---|---------|--|-----------------|

| | | | | |
|---|----------|--|--|-----------------|
|  | M1175-FL |  Indicator light |  Fuse 6.3 A aM | 2CSM214000R0721 |
|---|----------|--|--|-----------------|


| | | | |
|---|---------|---|-----------------|
|  | M1175-C |  Cover IP30 | 2CSM211000R0721 |
|---|---------|---|-----------------|

Italian P30 standard


| | | | |
|---|-------|--|-----------------|
|  | M1173 | | 2CSM110000R0701 |
|---|-------|--|-----------------|

| | | | |
|---|---------|--|-----------------|
|  | M1173-L |  Indicator light | 2CSM112000R0701 |
|---|---------|--|-----------------|

Italian dual standard

| | | | |
|---|-------|--|-----------------|
|  | M1170 | | 2CSM210000R0701 |
|---|-------|--|-----------------|

French Standard

| | | | |
|---|-------|-----------------|-----------------|
|  | M1174 | 2CSM110000R0711 | 2CSM110000R0711 |
|---|-------|-----------------|-----------------|

Command and signaling

Modular sockets selection table

■ RAL 7035

British Standard



M1363

2CSM259343R0721

2CSM259343R0721



M1363-L



Indicator light

2CSM258163R0721

Swiss standard SEV 2011



M1011-T13

Single-phase 10 A
Type 13

2CSM220685R0721



M1011-T23

Single-phase 16 A
Type 23

2CSM220695R0721



M1011-T15

Three-phase 10 A
Type 15

2CSM220705R0721



M1011-T25

Three-phase 16 A
Type 25

2CSM220715R0721

Command and signaling

Modular sockets



Modular sockets

Technical specifications

| | | | | | | | |
|--------------------------------|---|--|-------------------|-----------|-------|------------------------|--------|
| Rated voltage Un | [V] | 250 a.c. | | | | | |
| Rated current In | [A] | 16 (M1170, M1173, M1174, M1175), 13 (M1363), | | | | | |
| Rated frequency | [Hz] | 50/60 | | | | | |
| Power loss | [W] | 0,6 | | | | | |
| Modules | [No.] | 2.5 for M117x 3 for M1011, M1363 | | | | | |
| Safety shutters | | yes, on entire range | | | | | |
| 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 / IP30 versions with cover, when cover is closed | | | | | | |
| | | M1011 | M1175 | M1173 | M1170 | M1174 | M1363 |
| Reference standards | | SEV 1011 | DIN VDE 0620-1 | CEI 23-50 | | NF C 61 314 | BS1363 |
| Approvals | | SEV | VDE, EAC | IMQ, EAC | EAC | LCIE, CEBEC, EAC | BSI |

Indicator light technical specifications

| | | | | | | |
|-------------------|---|------|--|--|--|--|
| Type | fluorescent torpedo-shaped lamp | | | | | |
| Function | Indication of power supply presence (M1363, M1173, M1175) | | | | | |
| Light colour | green | | | | | |
| Power consumption | [W] | 0.25 | | | | |

Fuse technical specifications

| | | | | | | |
|--------------------|-------------------------|------|--|--|--|--|
| Type | 5 x 20mm up to 6.3 A aM | | | | | |
| Function | phase protection | | | | | |
| Breaking capacity | [A] | 1500 | | | | |
| Reference standard | IEC EN 60127 | | | | | |

Command and signaling

Modular sockets



M1175



M1175-C



M1175-C



M1175-FL



M1173

Modular sockets

Modular sockets allow the connection of devices, tools or electrical and electronic non modular equipments in civil and industrial electrical switchboards.

The range is composed by standard versions as well as upgraded versions with additional features as light indicator, protection fuse and cover.

German Shuko standard modular sockets

| Color | Bbn | Order details | | Price | Weight | Pack |
|-------------------|---------|---------------|-----------------|---------|---------|------|
| | 8012542 | EAN | Type code | 1 piece | 1 piece | unit |
| | | | Order code | | kg | pc. |
| grey | 027850 | M1175 | 2CSM21000R0721 | | 0,120 | 4 |
| ■ grey with cover | 029052 | M1175-C | 2CSM211000R0721 | | 0,140 | 4 |

German Shuko standard modular sockets with integrated indicator light and fuse

| Color | Bbn | Order details | | Price | Weight | Pack |
|----------------------------|---------|---------------|-----------------|---------|---------|------|
| | 8012542 | EAN | Type code | 1 piece | 1 piece | unit |
| | | | Order code | | kg | pc. |
| ■ grey with light | 028253 | M1175-L | 2CSM212000R0721 | | 0,140 | 4 |
| ■ grey with light and fuse | 028659 | M1175-FL | 2CSM214000R0721 | | 0,160 | 4 |

Italian P30 standard modular sockets

| Color | Bbn | Order details | | Price | Weight | Pack |
|-------|---------|---------------|-----------------|---------|---------|------|
| | 8012542 | EAN | Type code | 1 piece | 1 piece | unit |
| | | | Order code | | kg | pc. |
| grey | 004103 | M1173 | 2CSM110000R0701 | | 0,120 | 4 |

Italian P30 standard modular sockets with integrated indicator light

| Color | Bbn | Order details | | Price | Weight | Pack |
|-------------------|---------|---------------|-----------------|---------|---------|------|
| | 8012542 | EAN | Type code | 1 piece | 1 piece | unit |
| | | | Order code | | kg | pc. |
| ■ grey with light | 027058 | M1173-L | 2CSM112000R0701 | | 0,140 | 4 |

Command and signaling

Modular sockets



M1170



M1174



M1363

Italian dual standard modular sockets

| Color | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|-------|----------------|---------------|-----------------|------------------|-------------------|--------------|
| | EAN | Type code | Order code | | kg | pc. |
| grey | 027454 | M1170 | 2CSM210000R0701 | | 0,120 | 4 |

French standard modular sockets

| Color | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|-------|----------------|---------------|-----------------|------------------|-------------------|--------------|
| | EAN | Type code | Order code | | kg | pc. |
| grey | 006602 | M1174 | 2CSM110000R0711 | | 0,140 | 4 |

British standard modular sockets.

| Color | Bbn 8012542 | Order details | | Price 1 piece | Weight 1 piece | Pack unit |
|-----------------|----------------|---------------|-----------------|------------------|-------------------|--------------|
| | EAN | Type code | Order code | | kg | pc. |
| grey | 593430 | M1363 | 2CSM259343R0721 | | 0,140 | 4 |
| grey with light | 581635 | M1363-L | 2CSM258163R0721 | | 0,140 | 4 |

Command and signaling

Modular sockets



M1011-T13



M1011-T23



M1011-T15



M1011-T25

Swiss standard modular sockets

The M1011 series, with SEV certification, allows to plug four types of swiss standard plugs, single- and three-phase e with currents up to 10 A or 16 A. They can be mounted on DIN rail or Smisline rails without supply connection.

| Color | | Bbn 8012542 | Order details | | | Price 1 piece | Weight 1 piece | Pack unit |
|-------|-------------------|----------------|---------------|-----------------|------------|------------------|-------------------|--------------|
| | | | EAN | Type code | Order code | | | |
| grey | Single-phase 10 A | 206873 | M1011-T13 | 2CSM220685R0721 | | 0.140 | 2 | |
| grey | Single-phase 16 A | 206972 | M1011-T23 | 2CSM220695R0721 | | 0.140 | 2 | |
| grey | Three-phase 10 A | 207078 | M1011-T15 | 2CSM220705R0721 | | 0.170 | 2 | |
| grey | Three-phase 16 A | 207177 | M1011-T25 | 2CSM220715R0721 | | 0.170 | 2 | |

Command and signaling

MA1-8001 DIN rail adapter



MA1-8001

MA1-8001 DIN rail adapter

Through an appropriate kit, this product born with the Modular Range of Pilot devices is the perfect case for alongside Ø 22 mm pilot devices with “System pro M compact” products. The Ø 22mm pilot devices can now find a greater use even within distribution or automation switchboards with modular panels maintaining an high aesthetic level.

The MA1-8001 offers a lot of advantages:

- Fast and easy mounting
- Simple wiring
- Simple maintenance
- Less depth of operators
- Perfect harmony alongside the “System pro M compact” products

Using MA1-8001 it's possible to put together “System pro M compact” products with LED pilot light, potentiometer, key selectors, toggle switches, selector switches, push- buttons, mushroom buttons and emergency stop, illuminated or not.

For detailed description of the industrial devices that can be installed using this kit, see technical catalogue 1SFC151003C0201



MA1-8121

| Color | Bbn 7320500 | Order details | | | Price 1 piece | Weight 1 piece | Pack unit |
|-------|----------------|--------------------------------------|-----------|------------|------------------|-------------------|--------------|
| | | EAN | Type code | Order code | | | |
| | | | | | kg | pc. | |
| | | DIN rail adapter KIT (2 modules) ① ② | 357880 | MA1-8001 | 1SFA611920R8001 | 0.023 | 1 |
| | | DIN rail adapter (2 modules) ① | 357702 | MA1-8131 | 1SFA611920R8131 | 0.020 | 10 |

① Can be used only with Modular range pilot devices units; it cannot be used with the old CBK range or Compact range products.

② KIT includes one Din rail adapter, one empty block and 2 pins

Technical notes

- To assemble the new housing with push-buttons, selector switch and indicator lamps, contact blocks and lamp blocks for DIN rails must be used.
- The MCBH-00 holder is not necessary, because the housing hooks directly to contact blocks.
- To line up with “System pro M compact” products, a maximum of 3 blocks must be used.
- In the configuration with 3 contacts, it is advisable to use securing pins to make the blocks more solid.
- In making up actuators or indicator lamps that use a single contact, one or two MDB-2 empty blocks must be used.

