

## E 90. Uncompromising performance

A safe and smart range designed for quick, flexible and error-proof installation

### Compactness

The compact dimensions enable to close the switchboard door even when the fuse holder is open, thus ensuring total safety during maintenance.

### Reliability

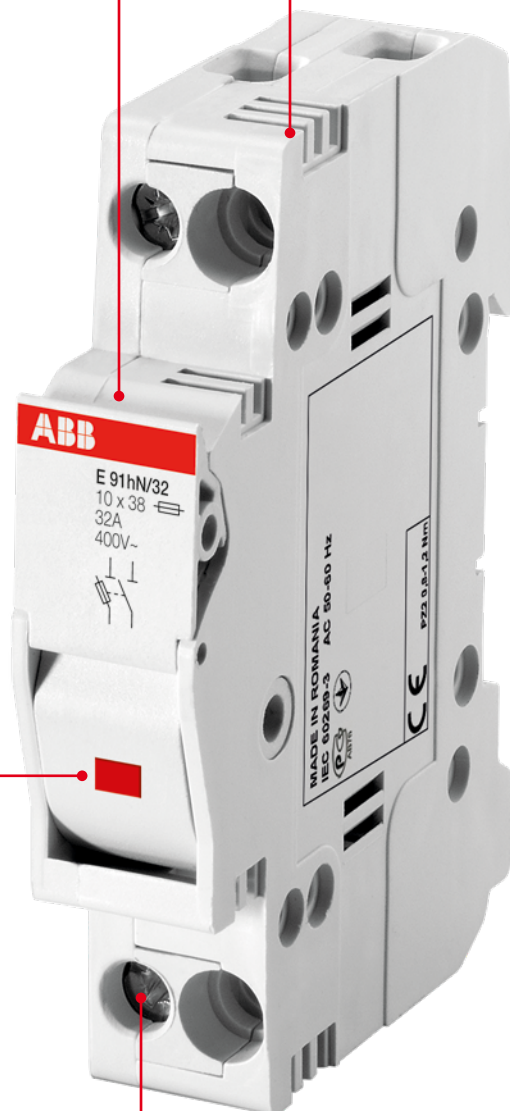
Venting grooves and cooling chambers improve heat dissipation even in multiple-pole configurations.

### Completeness

The fuse tripping can be easily displayed, thanks to the special blown fuse indicator light.

### Universal use

Screw holes have increased diameter to accommodate insulated screwdrivers and electric screwdrivers.



## E 90. Uncompromising performance

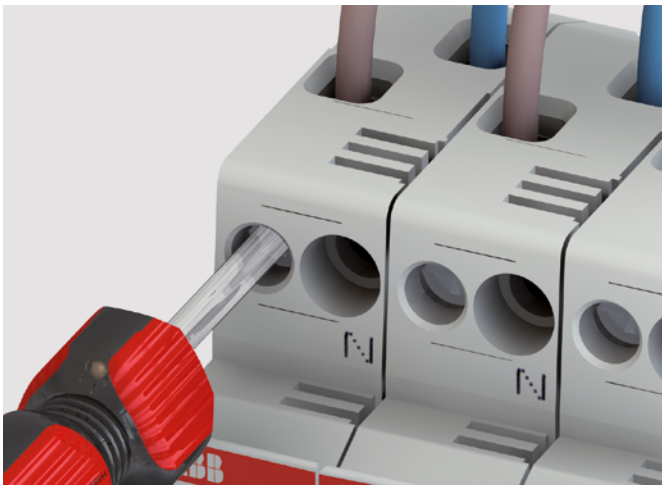
A safe and smart range designed for quick, flexible and error-proof installation



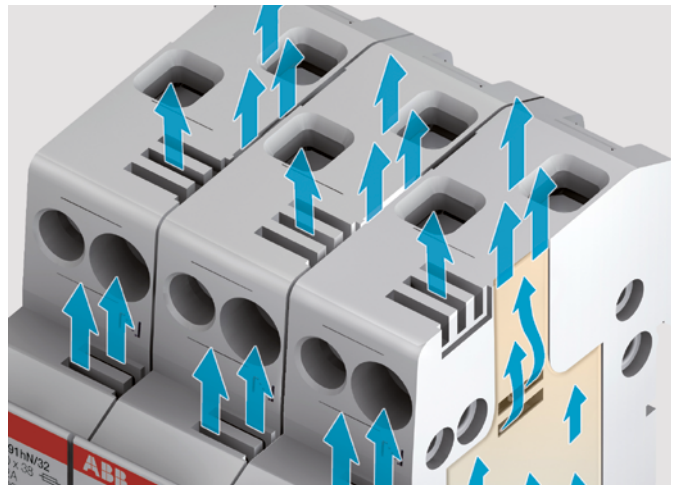
Fuseholder profile has been designed for maximum ease of use: the 90° flip hinge with ergonomic knob, makes the replacement of fuses easier even in small spaces or when wearing protective gloves.



The compact dimensions enable to close the switchboard door even when the fuseholder is open, thus ensuring total safety during maintenance.



With the Prozidriv PZ2 screws tightening can be performed by exerting less torque than conventional screws, and the same electric screwdriver can be used for all terminals. Moreover, the PS connection busbars facilitate the connecting operations, making the wiring both simple and safe and providing complete integration with S 200 and SN 201 System pro M compact® circuit-breakers.



Venting grooves and cooling chambers improve heat dissipation even in multiple-pole configurations. The reduced operating temperature inside fuseholders ensures durability and reliability of the devices over time.

## Protection and safety

### E 90 fuse switch disconnectors



E 90

#### Technical features

| Type                                          |                    | E 90/20                                                  | E 90/32                         |
|-----------------------------------------------|--------------------|----------------------------------------------------------|---------------------------------|
| Rated current                                 | A                  | 20                                                       | 32                              |
| Type of current                               |                    | AC                                                       |                                 |
| Fuse                                          | [mm]               | 8 x 31                                                   | 10 x 38                         |
| Max power dissipation accepted                | [W]                | 2.5                                                      | 3                               |
| Rated frequency                               | [Hz]               | 50-60                                                    |                                 |
| Tightening torque                             | [Nm]               | PZ2 2-2.5*                                               |                                 |
| Protection degree                             |                    | IP20                                                     |                                 |
| Rated insulation voltage                      | [kV]               | 1                                                        |                                 |
| Terminals cross-section                       | [mm <sup>2</sup> ] | 25                                                       |                                 |
| Cross-section rigid copper conductors         | 1 wire             | 1.5-25 mm <sup>2</sup> (16-10 AWG)                       |                                 |
|                                               | 2 wires            | -                                                        | 5 mm <sup>2</sup> (10 AWG)      |
| Cross-section stranded copper conductors      | 1 wire             | 1.5-16 mm <sup>2</sup> (16-3 AWG)                        |                                 |
|                                               | 2 wires            | -                                                        | 2-5 mm <sup>2</sup> (14-10 AWG) |
| Operating temperature                         | [°C]               | -5/+40 <sup>(1)</sup>                                    |                                 |
| Storage temperature                           | [°C]               | -25/+70 <sup>(2)</sup>                                   |                                 |
| Altitude                                      | [m]                | 2000                                                     |                                 |
| Degree of relative humidity at temperature °C |                    | max. 90% with temp. +20 °C<br>50% with max. temp. +40 °C |                                 |
| Voltage range for LED indicator light         |                    | 24-1000 AC/DC (only s version)                           |                                 |
| Padlockable (when open)                       |                    | ■                                                        | ■                               |
| Sealable (when closed)                        |                    | ■                                                        | ■                               |
| <b>IEC 60947-3</b>                            |                    |                                                          |                                 |
| Utilization category                          |                    | AC-22B                                                   | AC-22B                          |
| Markings                                      | [V]                | 400                                                      | 400                             |

<sup>(1)</sup> for lower temperature verify fuse technical characteristics, for higher temperature refer to derating table in Chapter 5 of Electrical installation solutions for buildings - Technical details

<sup>(2)</sup> for more than 24h max temperature is +55 °C

\*\* PZ2 2.8 Nm in case of rigid copper conductors, 2 wires

#### Shock and vibration

Vibration withstand on the 3 main axis:

- Sinusoidal vibration testing according to IEC 60068-2-6: 2 to 13 Hz x = 1mm peak;  
13 to 100 Hz y = 0.7g peak
- Random vibration testing according to IEC 61373: Category 1 Class B

Shock withstand

- Shock testing according to IEC 60068-2-27 : 15g/11 ms/18 shocks
- Shock testing according to IEC 61373: Category 1 Class B

#### Materials

|               |                |                                                                                                         |
|---------------|----------------|---------------------------------------------------------------------------------------------------------|
| Plastic parts | Case:          | Material PA 6 +30% glass fibre<br>Self extinguishing class: V2 (UL94)<br>Temperature resistance: 130 °C |
|               | Opening handle | Material PA 66 +25% glass fibre<br>Self-extinguishing class V0 (UL94)<br>Temperature resistance: 140 °C |
|               | Clips          | Silver plated copper                                                                                    |
|               | Clip spring    | Stainless steel                                                                                         |
| Metal parts   | Terminals      | Galvanized steel                                                                                        |

The E 90 series is environmental friendly and protects the health of people: all used materials are conform to the RoHS and REACH directives and they completely exclude hazardous substances and halogen.

## Protection and safety

### E 90 fuse switch disconnectors



E 92



E 94

#### E 90 fuse switch disconnectors

E 90 series fuse switch disconnectors are designed for switching circuits under load, providing protection against short circuits and overloads. The case is made of self-extinguishing thermoplastic material resistant to high temperatures (all materials are UL listed) while the contact clips are in silver plated copper.

E 90 fuse switch disconnectors can be sealed or padlocked to ensure operator safety during maintenance. Versions with blown fuse indicator allow to check whether the fuse is still working correctly or not. For easy and quick installation E 90 range is totally compatible with connecting bars, terminals and caps of S 200 MCBs.

Thanks to cURus approval, they can be installed in UL certified machines.

#### E 90 fuse switch disconnectors for 10.3 x 38 mm fuses (AC-22B)

| Poles | Rated current | Modules | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece<br>kg | Pack<br>unit<br>pc. |
|-------|---------------|---------|----------------|---------------|-----------------|---------------------|-------------------------|---------------------|
|       |               |         |                | Type code     | Order code      |                     |                         |                     |
| In    |               |         | EAN            |               |                 |                     |                         |                     |
| 1     | 32            | 1       | 009238         | E 91/32       | 2CSM200923R1801 |                     | 0.061                   | 6                   |
| 1     | 32            | 1       | 024835         | E 91/32s      | 2CSM202483R1801 |                     | 0.062                   | 6                   |
| 1+N   | 32            | 2       | 008934         | E 91N/32      | 2CSM200893R1801 |                     | 0.130                   | 3                   |
| 1+N   | 32            | 2       | 515036         | E 91N/32s     | 2CSM251503R1801 |                     | 0.132                   | 3                   |
| 2     | 32            | 2       | 008835         | E 92/32       | 2CSM200883R1801 |                     | 0.122                   | 3                   |
| 2     | 32            | 2       | 514930         | E 92/32s      | 2CSM251493R1801 |                     | 0.132                   | 3                   |
| 3     | 32            | 3       | 047537         | E 93/32       | 2CSM204753R1801 |                     | 0.183                   | 2                   |
| 3     | 32            | 3       | 020639         | E 93/32s      | 2CSM202063R1801 |                     | 0.184                   | 2                   |
| 3+N   | 32            | 4       | 047339         | E 93N/32      | 2CSM204733R1801 |                     | 0.252                   | 1                   |
| 3+N   | 32            | 4       | 514831         | E 93N/32s     | 2CSM251483R1801 |                     | 0.255                   | 1                   |
| 4     | 32            | 4       | 047230         | E 94/32       | 2CSM204723R1801 |                     | 0.244                   | 1                   |
| 4     | 32            | 4       | 020530         | E 94/32s      | 2CSM202053R1801 |                     | 0.248                   | 1                   |

s: version with blown fuse indicator light

#### E 90 fuse switch disconnectors for 8.5 x 31.5 mm fuses (AC-22B)

| Poles | Rated current | Modules | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece<br>kg | Pack<br>unit<br>pc. |
|-------|---------------|---------|----------------|---------------|-----------------|---------------------|-------------------------|---------------------|
|       |               |         |                | Type code     | Order code      |                     |                         |                     |
| In    |               |         | EAN            |               |                 |                     |                         |                     |
| 1     | 20            | 1       | 009832         | E 91/20       | 2CSM200983R1801 |                     | 0.061                   | 6                   |
| 1     | 20            | 1       | 024231         | E 91/20s      | 2CSM202423R1801 |                     | 0.062                   | 6                   |
| 2     | 20            | 2       | 009535         | E 92/20       | 2CSM200953R1801 |                     | 0.122                   | 3                   |
| 2     | 20            | 2       | 896234         | E 92/20s      | 2CSM289623R1801 |                     | 0.062                   | 3                   |
| 3     | 20            | 3       | 009436         | E 93/20       | 2CSM200943R1801 |                     | 0.183                   | 2                   |
| 3     | 20            | 3       | 896135         | E 93/20s      | 2CSM289613R1801 |                     | 0.184                   | 2                   |

s: version with blown fuse indicator light



## Protection and safety

### E 90h fuseholders



E 91hN



E 93hN

#### Technical features

| Type                                          |       | E 90hN/20                                                | E 90hN/32 |
|-----------------------------------------------|-------|----------------------------------------------------------|-----------|
| Rated current                                 | [A]   | 20                                                       | 32        |
| Type of current                               |       | AC                                                       |           |
| Fuse                                          | [mm]  | 8 x 31                                                   | 10 x 38   |
| Max power dissipation accepted                | [W]   | 2.6                                                      | 3.2       |
| Rated frequency                               | [Hz]  | 50-60                                                    |           |
| Tightening torque                             | [Nm]  | PZ2 0.8-1.2                                              |           |
| Protection degree                             |       | IP20                                                     |           |
| Rated insulation voltage                      | [kV]  | 1                                                        |           |
| Terminals cross-section                       | [mm²] | 16                                                       |           |
| Cross-section rigid copper conductors         | [mm²] | 1.5-16                                                   |           |
| Cross-section stranded copper conductors      | [mm²] | 1.5-10                                                   |           |
| Operating temperature                         | [°C]  | -5/+40 <sup>(1)</sup>                                    |           |
| Storage temperature                           | [°C]  | -25/+70 <sup>(2)</sup>                                   |           |
| Altitude                                      | [m]   | 2000                                                     |           |
| Degree of relative humidity at temperature °C |       | max. 90% with temp. +20 °C<br>50% with max. temp. +40 °C |           |
| Voltage range for LED indicator light         |       | 24-1000 AC/DC (only s version)                           |           |
| Padlockable (when open)                       |       | ■                                                        |           |
| Sealable (when closed)                        |       | ■                                                        |           |
| <b>IEC 60269-3</b>                            |       |                                                          |           |
| Rated voltage                                 | [V]   | 400                                                      |           |

<sup>(1)</sup> for lower temperature verify fuse technical characteristics, for higher temperature refer to derating table in Chapter 5 of Electrical installation solutions for buildings - Technical details

<sup>(2)</sup> for more than 24h max temperature is +55 °C



Fuse indicator LED

#### E 90h fuseholders

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

#### E 90h fuseholders for 10.3 x 38 mm fuses

| Poles | Rated current | Modules | Bbn 8012542 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|-------|---------------|---------|-------------|---------------|-----------------|---------------|----------------|-----------|
| In    |               |         | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 1+N   | 32            | 1       | 009139      | E 91hN/32     | 2CSM200913R1801 |               | 0.070          | 6         |
| 1+N   | 32            | 1       | 065739      | E 91hN/32s    | 2CSM206573R1801 |               | 0.071          | 6         |
| 3+N   | 32            | 3       | 047438      | E 93hN/32     | 2CSM204743R1801 |               | 0.192          | 2         |
| 3+N   | 32            | 3       | 743439      | E 93hN/32s    | 2CSM274343R1801 |               | 0.200          | 2         |

s: version with blown fuse indicator light

#### E 90h fuseholders for 8.5 x 31.5 mm fuses

| Poles | Rated current | Modules | Bbn 8012542 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|-------|---------------|---------|-------------|---------------|-----------------|---------------|----------------|-----------|
| In    |               |         | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 1+N   | 20            | 1       | 009634      | E 91hN/20     | 2CSM200963R1801 |               | 0.070          | 6         |
| 1+N   | 20            | 1       | 007036      | E 91hN/20s    | 2CSM200703R1801 |               | 0.071          | 6         |
| 3+N   | 20            | 3       | 009337      | E 93hN/20     | 2CSM200933R1801 |               | 0.192          | 2         |
| 3+N   | 20            | 3       | 896036      | E 93hN/20s    | 2CSM289603R1801 |               | 0.200          | 2         |

s: version with blown fuse indicator light

## Protection and safety

### E 90 PV fuse disconnectors



E 90 PV

#### Technical features

| Type                                          |                    | E 90/32 PV                                               | E 90/32 PV according to UL |
|-----------------------------------------------|--------------------|----------------------------------------------------------|----------------------------|
| Rated current                                 | [A]                | 32                                                       | 30                         |
| Type of current                               |                    | DC                                                       |                            |
| Fuse                                          | [mm]               | 10 x 38                                                  |                            |
| Max power dissipation accepted                | [W]                | 3                                                        |                            |
| Rated frequency                               | [Hz]               | -                                                        |                            |
| Tightening torque                             |                    | PZ2 2-2.5 Nm                                             | PZ2 18-22 lb-in            |
| Protection degree                             |                    | IP20                                                     |                            |
| Rated insulation voltage                      | [kV]               | 1                                                        |                            |
| Terminals cross-section                       | [mm <sup>2</sup> ] | 25                                                       |                            |
| Cross-section rigid copper conductors         |                    | 1.5 - 25 mm <sup>2</sup>                                 | n..a.                      |
| Cross-section stranded copper conductors      |                    | 1.5 - 16 mm <sup>2</sup>                                 | 8÷3 AWG                    |
| Operating temperature                         | [°C]               | -5/+40 <sup>(1)</sup>                                    |                            |
| Storage temperature                           | [°C]               | -25/+70 <sup>(2)</sup>                                   |                            |
| Altitude                                      | [m]                | 2000                                                     |                            |
| Degree of relative humidity at temperature °C |                    | max. 90% with temp. +20 °C<br>50% with max. temp. +40 °C |                            |
| Voltage range for LED indicator light         |                    | 24-1000 AC/DC<br>(only s version)                        |                            |
| Can be padlocked (open)                       |                    | ■                                                        |                            |
| Can be sealed (closed)                        |                    | ■                                                        |                            |
| <b>IEC 60947-3</b>                            |                    |                                                          |                            |
| Utilization category                          |                    | DC-20B                                                   |                            |
| Rated voltage                                 | [V]                | 1000                                                     |                            |

<sup>(1)</sup> for lower temperature verify fuse technical characteristics, for higher temperature refer to derating table in Chapter 5 of Electrical installation solutions for buildings - Technical details

<sup>(2)</sup> for more than 24h max temperature is +55 °C

#### E 90 PV fuse disconnectors

E 90 PV series fuse disconnectors, designed for operating voltages of 1000 V DC with utilization category DC-20B, are particularly suited for protection against overcurrents of photovoltaic systems. The single-pole or two-pole E 90 PV disconnectors for 10.3 x 38 mm cylindrical fuse links offer a reliable, compact and affordable solution for photovoltaic installations. Versions with blown fuse indicator allow to check whether the fuse is still working correctly or not.

#### E 90 PV fuse disconnectors for 10.3 x 38 mm fuses (DC-20B)

| Poles | Rated current | Modules | Bbn 8012542 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|-------|---------------|---------|-------------|---------------|-----------------|---------------|----------------|-----------|
|       | In            |         | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 1     | 32            | 1       | 047131      | E 91/32 PV    | 2CSM204713R1801 |               | 0.061          | 6         |
| 1     | 32            | 1       | 046936      | E 91/32s PV   | 2CSM204693R1801 |               | 0.062          | 6         |
| 2     | 32            | 2       | 047032      | E 92/32 PV    | 2CSM204703R1801 |               | 0.122          | 3         |
| 2     | 32            | 2       | 569138      | E 92/32s PV   | 2CSM256913R1801 |               | 0.233          | 3         |

s: version with blown fuse indicator light

## Protection and safety

### E 90 PV 1500 fuse holder



E 90 PV 1500

#### Technical features

| Type                                              | E90/32 PV1500      |                                                          |
|---------------------------------------------------|--------------------|----------------------------------------------------------|
| Reference standards                               | -                  | IEC 60269-1,-2,-6 UL 4248-19                             |
| Rated current                                     | [A]                | 32 (acc. IEC) / 30 (acc. UL)                             |
| Rated operational voltage                         | [V]                | 1500 V DC                                                |
| Fuse size                                         | [mm]               | 10×85 and 10/14×85                                       |
| Max. power dissipation accepted                   | [W]                | 6                                                        |
| Tightening torque                                 | [Nm]               | PZ2 2-2.5 Nm (PZ2 18-22 lb-in)                           |
| Protection degree                                 | -                  | IP20                                                     |
| Rated insulation voltage                          | [kV]               | 1                                                        |
| Cross section rigid copper conductors (1 wire)    | [mm <sup>2</sup> ] | 16-10 AWG                                                |
| Cross section stranded copper conductors (1 wire) | [mm <sup>2</sup> ] | 0.75 – 25 (18-4 AWG)                                     |
| Cable temperature                                 | [°C]               | max 90 (acc. UL)                                         |
| Operating temperature                             | [°C]               | > -5                                                     |
| Storage temperature                               | [°C]               | > -25                                                    |
| Degree of relative humidity at temperature °C     |                    | max. 90% with temp. +20 °C<br>50% with max. temp. +40 °C |
| Approvals                                         | -                  | UL , CCC                                                 |

#### E 90 PV fuse holder

The E 90 PV 1500 series of fuse holders has been designed for applications up to 1500 V DC. Thanks to their rated voltage up to 1500 V DC they are the ideal solution for protecting cells and inverters. In case of maintenance, they ensure isolation of circuits and strings up to 1500 V in direct current, in total safety. The main features of E 90 PV 1500 fuse holders include venting grooves and cooling chambers which improved heat dissipation.

#### E 90 PV fuse holder for 10 × 85 mm and 10/14 × 85 mm fuses

| Poles | Rated current | Width | Bbn<br>8012542 | Order details  |                 | Price<br>1<br>piece | Weight<br>1 piece<br>kg | Pack<br>unit<br>pc. |
|-------|---------------|-------|----------------|----------------|-----------------|---------------------|-------------------------|---------------------|
|       |               |       |                | Type code      | Order code      |                     |                         |                     |
| 1     | 32            | 22.5  | 020417         | E91/32 PV1500e | 2CSM202041R1801 |                     | 0.080                   | 5                   |
| 1     | 32            | 22.5  | 743613         | E91/32 PV1500e | 2CSM274361U1801 |                     | 0.080                   | 60                  |

## Protection and safety

### E 90 50/125 fuse disconnectors



E 90 50/125

#### Technical features

| Type                                          |                    | E 90/50                                                  | E 90/125  |
|-----------------------------------------------|--------------------|----------------------------------------------------------|-----------|
| Rated current                                 | [A]                | 50                                                       | 100*      |
| Type of current                               |                    | AC                                                       |           |
| Fuse                                          | [mm]               | 14 x 51                                                  | 22 x 58   |
| Max power dissipation accepted                | [W]                | 5                                                        | 9.5       |
| Rated frequency                               | [Hz]               | 50-60                                                    |           |
| Tightening torque                             | [Nm]               | PZ2 3-3.5                                                | PZ2 3.5-4 |
| Protection degree                             |                    | IP20**                                                   |           |
| Rated insulation voltage                      | [kV]               | 1                                                        |           |
| Terminals cross-section                       | [mm <sup>2</sup> ] | 35                                                       | 50        |
| Cross-section rigid copper conductors         | [mm <sup>2</sup> ] | 2.5 - 35                                                 | 4 - 50    |
| Cross-section stranded copper conductors      | [mm <sup>2</sup> ] | 2.5 - 25                                                 | 4 - 35    |
| Operating temperature                         | [°C]               | -5/+40 <sup>(1)</sup>                                    |           |
| Storage temperature                           | [°C]               | -25/+70 <sup>(2)</sup>                                   |           |
| Degree of relative humidity at temperature °C |                    | max. 90% with temp. +20 °C<br>50% with max. temp. +40 °C |           |
| Can be sealed closed                          |                    | ■                                                        | ■         |
| Can be padlocked open                         |                    | ■                                                        | ■         |
| <b>IEC 60947-3</b>                            |                    |                                                          |           |
| Utilization category                          |                    | AC-20B                                                   |           |
| Rated voltage                                 | [V]                | 690                                                      |           |

\* 125A with fuses of type aM and in combination with a device which guarantees protection against overload

\*\* The protection degree IP20 is obtained also as standalone unit with respect to wire size of 10mm<sup>2</sup>

<sup>(1)</sup> for lower temperature verify fuse technical characteristics, for higher temperature refer to derating table in Chapter 5 of Electrical installation solutions for buildings - Technical details

<sup>(2)</sup> for more than 24h max temperature is +55 °C

#### E90 50/125 fuse disconnectors

The E 90 50/125 fuse disconnector range is specifically intended for industrial circuit protection when currents are from 50 A to 125 A. They can, respectively, carry any type of cylindrical fuses 14x51 and 22x58 mm. The E 90 50/125 fuseholders can be sealed or padlocked in open position to ensure operator safety during maintenance operations. Versions with blown fuse indicator (LED) allow checking whether the fuse is still working correctly or not.

#### E 90/50 fuse disconnectors for 14 x 51 mm fuses (AC-20B)

| Poles | Rated current In | Modules | Bbn 8012542 EAN | Order details |                 | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|-------|------------------|---------|-----------------|---------------|-----------------|---------------|-------------------|---------------|
|       |                  |         |                 | Type code     | Order code      |               |                   |               |
| 1     | 50               | 1.5     | 790228          | E 91/50       | 2CSM279022R1801 |               | 0.095             | 4             |
| 1     | 50               | 1.5     | 372028          | E 91/50s      | 2CSM237202R1801 |               | 0.095             | 4             |
| 1+N   | 50               | 3       | 779827          | E 91N/50      | 2CSM277982R1801 |               | 0.19              | 2             |
| 1+N   | 50               | 3       | 023920          | E 91N/50s     | 2CSM202392R1801 |               | 0.19              | 2             |
| 2     | 50               | 3       | 779728          | E 92/50       | 2CSM277972R1801 |               | 0.19              | 2             |
| 2     | 50               | 3       | 070320          | E 92/50s      | 2CSM207032R1801 |               | 0.19              | 2             |
| 3     | 50               | 4.5     | 779629          | E 93/50       | 2CSM277962R1801 |               | 0.285             | 1             |
| 3     | 50               | 4.5     | 574828          | E 93/50s      | 2CSM257482R1801 |               | 0.285             | 1             |
| 3+N   | 50               | 6       | 779520          | E 93N/50      | 2CSM277952R1801 |               | 0.38              | 1             |
| 3+N   | 50               | 6       | 563020          | E 93N/50s     | 2CSM256302R1801 |               | 0.38              | 1             |

#### E 90/125 fuse disconnectors for 22 x 58 mm fuses (AC-20B)

| Poles | Rated current In | Modules | Bbn 8012542 EAN | Order details |                 | Price 1 piece | Weight 1 piece kg | Pack unit pc. |
|-------|------------------|---------|-----------------|---------------|-----------------|---------------|-------------------|---------------|
|       |                  |         |                 | Type code     | Order code      |               |                   |               |
| 1     | 100              | 2       | 775720          | E 91/125      | 2CSM277572R1801 |               | 0.135             | 4             |
| 1     | 100              | 2       | 896326          | E 91/125s     | 2CSM289632R1801 |               | 0.135             | 4             |
| 1+N   | 100              | 4       | 773528          | E 91N/125     | 2CSM277352R1801 |               | 0.27              | 2             |
| 1+N   | 100              | 4       | 049425          | E 91N/125s    | 2CSM204942R1801 |               | 0.27              | 2             |
| 2     | 100              | 4       | 771326          | E 92/125      | 2CSM277132R1801 |               | 0.27              | 2             |
| 2     | 100              | 4       | 049326          | E 92/125s     | 2CSM204932R1801 |               | 0.27              | 2             |
| 3     | 100              | 6       | 775027          | E 93/125      | 2CSM277502R1801 |               | 0.405             | 1             |
| 3     | 100              | 6       | 049227          | E 93/125s     | 2CSM204922R1801 |               | 0.405             | 1             |
| 3+N   | 100              | 8       | 965329          | E 93N/125     | 2CSM296532R1801 |               | 0.54              | 1             |
| 3+N   | 100              | 8       | 049128          | E 93N/125s    | 2CSM204912R1801 |               | 0.54              | 1             |

s: version with blown fuse indicator light

## Protection and safety

### E 90 CC fuseholders



E 91



E 93

#### Technical features

| Type                                                   |                    | E 90/30 CC                         |
|--------------------------------------------------------|--------------------|------------------------------------|
| Rated voltage                                          | [V]                | 600                                |
| Rated current                                          | [A]                | 30                                 |
| Type of current                                        |                    | AC/DC                              |
| Rated frequency                                        | [Hz]               | 60                                 |
| Fuse                                                   |                    | class CC                           |
| Rated insulation voltage                               | [kV]               | 1 + 2*U <sub>n</sub>               |
| Tightening torque                                      | [Nm]               | PZ2 2-2.5*                         |
|                                                        | [lb-in]            | PZ2 18-22**                        |
| Terminals cross-section                                | [mm <sup>2</sup> ] | 25                                 |
| Cross-section rigid copper conductors                  | 1 wire             | 1.5-25 mm <sup>2</sup> (16-10 AWG) |
|                                                        | 2 wires            | 5 mm <sup>2</sup> (10 AWG)         |
| Cross-section stranded copper conductors               | 1 wire             | 1.5-16 mm <sup>2</sup> (16-3 AWG)  |
|                                                        | 2 wires            | 2-5 mm <sup>2</sup> (14-10 AWG)    |
| Operating temperature                                  | [°C]               | -5/+40 <sup>(1)</sup>              |
| Storage temperature                                    | [°C]               | -25/+70 <sup>(2)</sup>             |
| Voltage range for LED indicator light (only s version) | [V]                | 24 - 1000 AC/DC                    |
| Degree of relative humidity at temperature °C          |                    | < 60%                              |
| Can be sealed closed                                   |                    | ■                                  |
| Can be padlocked open                                  |                    | ■                                  |

\* PZ2 2.8 Nm in case of rigid copper conductors, 2 wires

\*\* PZ2 24,5 lb-in in case of rigid copper conductors, 2 wires

<sup>(1)</sup> for lower temperature verify fuse technical characteristics, for higher temperature refer to derating table in Chapter 5 of Electrical installation solutions for buildings - Technical details

<sup>(2)</sup> for more than 24h max temperature is +55 °C

The E 90 fuse carriers for Class CC cylindrical fuse links are specifically designed for the North American market in compliance with the UL standards. In accordance with the reference standards UL 4248-1 and UL 4248-4, they come in voltage and current ratings up to 600V and 30A. They are available in 1P, 1P+N, 2P, 3P, 3P+N and 4P versions. They can be padlocked open and sealed closed.

The E 90 fuse carriers are the ideal solution for process control and industrial systems, automation systems, industrial installations and control circuits. The versions with blown fuse indicator light provide a visual signal of the fuse break condition

#### E 90 for class CC cartridge fuses

| Poles | Rated current | Modules | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece<br>kg | Pack<br>unit<br>pc. |
|-------|---------------|---------|----------------|---------------|-----------------|---------------------|-------------------------|---------------------|
|       |               |         |                | Type code     | Order code      |                     |                         |                     |
| 1     | 30            | 1       | 998723         | E 91/30 CC    | 2CSM299872R1801 |                     | 0.061                   | 6                   |
| 1     | 30            | 1       | 998822         | E 91/30s CC   | 2CSM299882R1801 |                     | 0.062                   | 6                   |
| 1+N   | 30            | 2       | 998921         | E 91N/30 CC   | 2CSM299892R1801 |                     | 0.13                    | 3                   |
| 1+N   | 30            | 2       | 999027         | E 91N/30s CC  | 2CSM299902R1801 |                     | 0.13                    | 3                   |
| 2     | 30            | 2       | 999126         | E 92/30 CC    | 2CSM299912R1801 |                     | 0.122                   | 3                   |
| 2     | 30            | 2       | 999225         | E 92/30s CC   | 2CSM299922R1801 |                     | 0.122                   | 3                   |
| 3     | 30            | 3       | 999324         | E 93/30 CC    | 2CSM299932R1801 |                     | 0.183                   | 2                   |
| 3     | 30            | 3       | 999423         | E 93/30s CC   | 2CSM299942R1801 |                     | 0.183                   | 2                   |
| 3+N   | 30            | 4       | 999522         | E 93N/30 CC   | 2CSM299952R1801 |                     | 0.252                   | 1                   |
| 3+N   | 30            | 4       | 999621         | E 93N/30s CC  | 2CSM299962R1801 |                     | 0.252                   | 1                   |
| 4     | 30            | 4       | 999720         | E 94/30 CC    | 2CSM299972R1801 |                     | 0.244                   | 1                   |
| 4     | 30            | 4       | 999829         | E 94/30s CC   | 2CSM299982R1801 |                     | 0.244                   | 1                   |

s: version with blown fuse indicator light

## Protection and safety

### E 90 J fuse fuseholders



E 90 Class J

#### Technical features

| Type                                          |                    | E 90/30 J              | E 90/60 J      |
|-----------------------------------------------|--------------------|------------------------|----------------|
| Rated current                                 | [A]                | 30                     | 60             |
| Rated voltage                                 | [V]                | 600                    |                |
| Type of current                               |                    | AC/DC                  |                |
| Fuse                                          |                    | Class J 1-30A          | Class J 31-60A |
| Rated frequency                               | [Hz]               | 60                     |                |
| Rated insulation voltage                      | [kV]               | 1 + 2*U <sub>n</sub>   |                |
| Tightening torque                             | [Nm]               | PZ2 3.5-4              |                |
| Terminals cross-section                       | [mm <sup>2</sup> ] | 50                     |                |
| Cross-section rigid copper conductors         | [AWG]              | 14-10                  |                |
| Cross-section stranded copper conductors      | [AWG]              | 14-8                   |                |
| Operating temperature                         | [°C]               | -5/+40 <sup>(1)</sup>  |                |
| Storage temperature                           | [°C]               | -25/+70 <sup>(2)</sup> |                |
| Degree of relative humidity at temperature °C |                    | < 60%                  |                |
| Can be sealed closed                          |                    | ■                      |                |
| Can be padlocked open                         |                    | ■                      |                |

<sup>(1)</sup> for lower temperature verify fuse technical characteristics, for higher temperature refer to derating table in Chapter 5 of Electrical installation solutions for buildings - Technical details

<sup>(2)</sup> for more than 24h max temperature is +55 °C

#### E 90 Class J

The E 90 Class J fuse carriers are the ideal solution for industrial systems, industrial installations and control circuits. They are specifically designed for the North American market in compliance with the UL standards. In accordance with the reference standard UL 4248-8, they come in voltage and current ratings up to 600V and 30/60A. They are available in 1P, 2P and 3P versions. The versions with blown fuse indicator light provide a visual signal of the fuse break condition. They can be padlocked open and sealed closed to ensure operator safety during maintenance operations.

#### E 90/30 fuse disconnectors for Class J fuses

| Poles | Rated current | Modules | Bbn 8012542 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|-------|---------------|---------|-------------|---------------|-----------------|---------------|----------------|-----------|
|       | In            |         | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 1     | 30            | 2       | 048220      | E 91/30 J     | 2CSM204822R1801 |               | 0.135          | 4         |
| 2     | 30            | 4       | 048121      | E 92/30 J     | 2CSM204812R1801 |               | 0.27           | 2         |
| 3     | 30            | 6       | 048022      | E 93/30 J     | 2CSM204802R1801 |               | 0.405          | 1         |
| 1     | 30            | 2       | 047926      | E 91/30s J    | 2CSM204792R1801 |               | 0.135          | 4         |
| 2     | 30            | 4       | 047827      | E 92/30s J    | 2CSM204782R1801 |               | 0.27           | 2         |
| 3     | 30            | 6       | 047728      | E 93/30s J    | 2CSM204772R1801 |               | 0.405          | 1         |

#### E 90/60 fuse disconnectors for Class J fuses

| Poles | Rated current | Modules | Bbn 8012542 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|-------|---------------|---------|-------------|---------------|-----------------|---------------|----------------|-----------|
|       | In            |         | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 1     | 60            | 2.5     | 047629      | E 91/60 J     | 2CSM204762R1801 |               | 0.175          | 3         |
| 2     | 60            | 5       | 049821      | E 92/60 J     | 2CSM204982R1801 |               | 0.35           | 1         |
| 3     | 60            | 7.5     | 049722      | E 93/60 J     | 2CSM204972R1801 |               | 0.525          | 1         |
| 1     | 60            | 2.5     | 049623      | E 91/60s J    | 2CSM204962R1801 |               | 0.175          | 3         |
| 2     | 60            | 5       | 049524      | E 92/60s J    | 2CSM204952R1801 |               | 0.35           | 1         |
| 3     | 60            | 7.5     | 738824      | E 93/60s J    | 2CSM273882R1801 |               | 0.525          | 1         |

s: version with blown fuse indicator light



Protection and safety

Cylindrical fuses E 9F gG



E 9F8

Technical features

|                     |      |                                    |
|---------------------|------|------------------------------------|
| Rated voltage       | [V]  | 400, 500, 690 AC                   |
| Rated current       | [A]  | 0.5...125                          |
| Breaking capacity   | [kA] | 20, 80, 120                        |
| Overall dimensions  | [mm] | 8.5x31.5 , 10.3x38 , 14x51 , 22x58 |
| Weight              | [g]  | 4, 7, 18, 48                       |
| Reference standards |      | IEC 60269-2; ROHS 2002/98/CE       |
| Marks               |      | LLOYD, BV                          |

E 9F 8 gG cylindrical fuses 8.5 x 31.5 mm

| Type       | Rated current<br>[A] | Rated voltage<br>[V AC] | Breaking capacity<br>[kA] |
|------------|----------------------|-------------------------|---------------------------|
| E 9F8 GG1  | 1                    | 400                     | 20                        |
| E 9F8 GG2  | 2                    | 400                     | 20                        |
| E 9F8 GG4  | 4                    | 400                     | 20                        |
| E 9F8 GG6  | 6                    | 400                     | 20                        |
| E 9F8 GG8  | 8                    | 400                     | 20                        |
| E 9F8 GG10 | 10                   | 400                     | 20                        |
| E 9F8 GG12 | 12                   | 400                     | 20                        |
| E 9F8 GG16 | 16                   | 400                     | 20                        |
| E 9F8 GG20 | 20                   | 400                     | 20                        |

E 9F 10 gG cylindrical fuses 10.3 x 38 mm

| Type        | Rated current<br>[A] | Rated voltage<br>[V AC] | Breaking capacity<br>[kA] |
|-------------|----------------------|-------------------------|---------------------------|
| E 9F10 GG05 | 0.5                  | 500                     | 120                       |
| E 9F10 GG1  | 1                    | 500                     | 120                       |
| E 9F10 GG2  | 2                    | 500                     | 120                       |
| E 9F10 GG4  | 4                    | 500                     | 120                       |
| E 9F10 GG6  | 6                    | 500                     | 120                       |
| E 9F10 GG8  | 8                    | 500                     | 120                       |
| E 9F10 GG10 | 10                   | 500                     | 120                       |
| E 9F10 GG12 | 12                   | 500                     | 120                       |
| E 9F10 GG16 | 16                   | 500                     | 120                       |
| E 9F10 GG20 | 20                   | 500                     | 120                       |
| E 9F10 GG25 | 25                   | 500                     | 120                       |
| E 9F10 GG32 | 32                   | 400                     | 120                       |



E 9F10

# Protection and safety

## Cylindrical fuses E 9F gG



E 9F14

### E 9F 14 gG cylindrical fuses 14 x 51 mm

| Type        | Rated current<br>[A] | Rated voltage<br>[V AC] | Breaking capacity<br>[kA] |
|-------------|----------------------|-------------------------|---------------------------|
| E 9F14 GG2  | 2                    | 690                     | 120                       |
| E 9F14 GG4  | 4                    | 690                     | 120                       |
| E 9F14 GG6  | 6                    | 690                     | 120                       |
| E 9F14 GG8  | 8                    | 690                     | 120                       |
| E 9F14 GG10 | 10                   | 690                     | 120                       |
| E 9F14 GG12 | 12                   | 690                     | 120                       |
| E 9F14 GG16 | 16                   | 690                     | 120                       |
| E 9F14 GG20 | 20                   | 690                     | 120                       |
| E 9F14 GG25 | 25                   | 690                     | 120                       |
| E 9F14 GG32 | 32                   | 500                     | 120                       |
| E 9F14 GG40 | 40                   | 500                     | 120                       |
| E 9F14 GG50 | 50                   | 500                     | 120                       |



E 9F22

### E 9F 22 gG cylindrical fuses 22 x 58 mm

| Type         | Rated current<br>[A] | Rated voltage<br>[V AC] | Breaking capacity<br>[kA] |
|--------------|----------------------|-------------------------|---------------------------|
| E 9F22 GG4   | 4                    | 690                     | 120                       |
| E 9F22 GG6   | 6                    | 690                     | 120                       |
| E 9F22 GG8   | 8                    | 690                     | 120                       |
| E 9F22 GG10  | 10                   | 690                     | 120                       |
| E 9F22 GG12  | 12                   | 690                     | 120                       |
| E 9F22 GG16  | 16                   | 690                     | 120                       |
| E 9F22 GG20  | 20                   | 690                     | 120                       |
| E 9F22 GG25  | 25                   | 690                     | 120                       |
| E 9F22 GG32  | 32                   | 690                     | 120                       |
| E 9F22 GG40  | 40                   | 690                     | 120                       |
| E 9F22 GG50  | 50                   | 690                     | 120                       |
| E 9F22 GG63  | 63                   | 690                     | 120                       |
| E 9F22 GG80  | 80                   | 690                     | 120                       |
| E 9F22 GG100 | 100                  | 500                     | 120                       |
| E 9F22 GG125 | 125                  | 500                     | 120                       |

## Protection and safety

### Cylindrical fuses E 9F gG

#### E 9F gG cylindrical fuses

The E 9F gG cylindrical fuses, coupled with E 90 and E 90 50/125 fuse disconnectors, are the ideal solution for protection against overload and short-circuit. They feature a fast tripping curve that is ideal for protecting electronic devices, transformers and electric cables. The E 9F gG series is available for all the main sizes (8.5 x 31.5 mm, 10.3 x 38 mm, 14 x 51 mm e 22 x 58 mm) and with a wide range of rated current values (from 1 A to 125 A and up to 690 V AC). All the E 9F series fuses conform to the RoHS directive and are type-approved in accordance with the most important international naval marks.



E 9F8

#### E 9F 8 gG cylindrical fuses 8.5 x 31.5 mm

| Rated current | Size     | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece | Pack<br>unit |
|---------------|----------|----------------|---------------|-----------------|---------------------|-------------------|--------------|
| In            | mm       | EAN            | Type code     | Order code      |                     | kg                | pc.          |
| 1             | 8.5x31.5 | 575733         | E 9F8 GG1     | 2CSM257573R1801 |                     | 0.004             | 10           |
| 2             | 8.5x31.5 | 563938         | E 9F8 GG2     | 2CSM256393R1801 |                     | 0.004             | 10           |
| 4             | 8.5x31.5 | 586630         | E 9F8 GG4     | 2CSM258663R1801 |                     | 0.004             | 10           |
| 6             | 8.5x31.5 | 574835         | E 9F8 GG6     | 2CSM257483R1801 |                     | 0.004             | 10           |
| 8             | 8.5x31.5 | 563037         | E 9F8 GG8     | 2CSM256303R1801 |                     | 0.004             | 10           |
| 10            | 8.5x31.5 | 775737         | E 9F8 GG10    | 2CSM277573R1801 |                     | 0.004             | 10           |
| 12            | 8.5x31.5 | 773535         | E 9F8 GG12    | 2CSM277353R1801 |                     | 0.004             | 10           |
| 16            | 8.5x31.5 | 771333         | E 9F8 GG16    | 2CSM277133R1801 |                     | 0.004             | 10           |
| 20            | 8.5x31.5 | 775034         | E 9F8 GG20    | 2CSM277503R1801 |                     | 0.004             | 10           |



E 9F10

#### E 9F 10 gG cylindrical fuses 10.3 x 38 mm

| Rated current | Size    | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece | Pack<br>unit |
|---------------|---------|----------------|---------------|-----------------|---------------------|-------------------|--------------|
| In            | mm      | EAN            | Type code     | Order code      |                     | kg                | pc.          |
| 0.5           | 10.3x38 | 773337         | E 9F10 GG05   | 2CSM277333R1801 |                     | 0.007             | 10           |
| 1             | 10.3x38 | 771135         | E 9F10 GG1    | 2CSM277113R1801 |                     | 0.007             | 10           |
| 2             | 10.3x38 | 587231         | E 9F10 GG2    | 2CSM258723R1801 |                     | 0.007             | 10           |
| 4             | 10.3x38 | 575436         | E 9F10 GG4    | 2CSM257543R1801 |                     | 0.007             | 10           |
| 6             | 10.3x38 | 563631         | E 9F10 GG6    | 2CSM256363R1801 |                     | 0.007             | 10           |
| 8             | 10.3x38 | 586333         | E 9F10 GG8    | 2CSM258633R1801 |                     | 0.007             | 10           |
| 10            | 10.3x38 | 574538         | E 9F10 GG10   | 2CSM257453R1801 |                     | 0.007             | 10           |
| 12            | 10.3x38 | 562733         | E 9F10 GG12   | 2CSM256273R1801 |                     | 0.007             | 10           |
| 16            | 10.3x38 | 775430         | E 9F10 GG16   | 2CSM277543R1801 |                     | 0.007             | 10           |
| 20            | 10.3x38 | 773238         | E 9F10 GG20   | 2CSM277323R1801 |                     | 0.007             | 10           |
| 25            | 10.3x38 | 771036         | E 9F10 GG25   | 2CSM277103R1801 |                     | 0.007             | 10           |
| 32            | 10.3x38 | 587132         | E 9F10 GG32   | 2CSM258713R1801 |                     | 0.007             | 10           |

## Protection and safety

### Cylindrical fuses E 9F gG



E 9F14

#### E 9F 14 gG cylindrical fuses 14 x 51 mm

| Rated current | Size  | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece | Pack<br>unit |
|---------------|-------|----------------|---------------|-----------------|---------------------|-------------------|--------------|
| In            | mm    | EAN            | Type code     | Order code      |                     | kg                | pc.          |
| 2             | 14x51 | 775232         | E 9F14 GG2    | 2CSM277523R1801 |                     | 0.018             | 10           |
| 4             | 14x51 | 773030         | E 9F14 GG4    | 2CSM277303R1801 |                     | 0.018             | 10           |
| 6             | 14x51 | 770831         | E 9F14 GG6    | 2CSM277083R1801 |                     | 0.018             | 10           |
| 8             | 14x51 | 910039         | E 9F14 GG8    | 2CSM291003R1801 |                     | 0.018             | 10           |
| 10            | 14x51 | 909835         | E 9F14 GG10   | 2CSM290983R1801 |                     | 0.018             | 10           |
| 12            | 14x51 | 909637         | E 9F14 GG12   | 2CSM290963R1801 |                     | 0.018             | 10           |
| 16            | 14x51 | 587835         | E 9F14 GG16   | 2CSM258783R1801 |                     | 0.018             | 10           |
| 20            | 14x51 | 576037         | E 9F14 GG20   | 2CSM257603R1801 |                     | 0.018             | 10           |
| 25            | 14x51 | 564232         | E 9F14 GG25   | 2CSM256423R1801 |                     | 0.018             | 10           |
| 32            | 14x51 | 586937         | E 9F14 GG32   | 2CSM258693R1801 |                     | 0.018             | 10           |
| 40            | 14x51 | 575139         | E 9F14 GG40   | 2CSM257513R1801 |                     | 0.018             | 10           |
| 50            | 14x51 | 563334         | E 9F14 GG50   | 2CSM256333R1801 |                     | 0.018             | 10           |



E 9F22

#### E 9F 22 gG cylindrical fuses 22 x 58 mm

| Rated current | Size  | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece | Pack<br>unit |
|---------------|-------|----------------|---------------|-----------------|---------------------|-------------------|--------------|
| In            | mm    | EAN            | Type code     | Order code      |                     | kg                | pc.          |
| 4             | 22x58 | 571834         | E 9F22 GG4    | 2CSM257183R1801 |                     | 0.048             | 10           |
| 6             | 22x58 | 592839         | E 9F22 GG6    | 2CSM259283R1801 |                     | 0.048             | 10           |
| 8             | 22x58 | 581031         | E 9F22 GG8    | 2CSM258103R1801 |                     | 0.048             | 10           |
| 10            | 22x58 | 569237         | E 9F22 GG10   | 2CSM256923R1801 |                     | 0.048             | 10           |
| 12            | 22x58 | 594031         | E 9F22 GG12   | 2CSM259403R1801 |                     | 0.048             | 10           |
| 16            | 22x58 | 582236         | E 9F22 GG16   | 2CSM258223R1801 |                     | 0.048             | 10           |
| 20            | 22x58 | 570431         | E 9F22 GG20   | 2CSM257043R1801 |                     | 0.048             | 10           |
| 25            | 22x58 | 595335         | E 9F22 GG25   | 2CSM259533R1801 |                     | 0.048             | 10           |
| 32            | 22x58 | 583530         | E 9F22 GG32   | 2CSM258353R1801 |                     | 0.048             | 10           |
| 40            | 22x58 | 571735         | E 9F22 GG40   | 2CSM257173R1801 |                     | 0.048             | 10           |
| 50            | 22x58 | 593935         | E 9F22 GG50   | 2CSM259393R1801 |                     | 0.048             | 10           |
| 63            | 22x58 | 582137         | E 9F22 GG63   | 2CSM258213R1801 |                     | 0.048             | 10           |
| 80            | 22x58 | 570332         | E 9F22 GG80   | 2CSM257033R1801 |                     | 0.048             | 10           |
| 100           | 22x58 | 595236         | E 9F22 GG100  | 2CSM259523R1801 |                     | 0.048             | 10           |
| 125           | 22x58 | 583431         | E 9F22 GG125  | 2CSM258343R1801 |                     | 0.048             | 10           |

Protection and safety

Cylindrical fuses E 9F aM



E 9F8 aM

Technical features

|                     |      |                                 |
|---------------------|------|---------------------------------|
| Rated voltage       | [V]  | 400, 500, 690 AC                |
| Rated current       | [A]  | 0.5...125                       |
| Breaking capacity   | [kA] | 20, 80, 120                     |
| Overall dimensions  | [mm] | 8.5x31.5, 10.3x38, 14x51, 22x58 |
| Weight              | [g]  | 4, 7, 18, 48                    |
| Reference standards |      | IEC 60269-2; ROHS 2002/98/CE    |
| Marks               |      | LLOYD, BV                       |

E 9F8 aM cylindrical fuses 8.5 x 31.5 mm

| Type       | Rated current<br>[A] | Rated voltage<br>[V AC] | Breaking capacity<br>[kA] |
|------------|----------------------|-------------------------|---------------------------|
| E 9F1 AM1  | 1                    | 400                     | 20                        |
| E 9F8 AM2  | 2                    | 400                     | 20                        |
| E 9F8 AM4  | 4                    | 400                     | 20                        |
| E 9F8 AM6  | 6                    | 400                     | 20                        |
| E 9F8 AM8  | 8                    | 400                     | 20                        |
| E 9F8 AM10 | 10                   | 400                     | 20                        |



E 9F10 aM

E 9F10 aM cylindrical fuses 10.3 x 38 mm

| Type        | Rated current<br>[A] | Rated voltage<br>[V AC] | Breaking capacity<br>[kA] |
|-------------|----------------------|-------------------------|---------------------------|
| E 9F10 AM05 | 0.5                  | 500                     | 120                       |
| E 9F10 AM1  | 1                    | 500                     | 120                       |
| E 9F10 AM2  | 2                    | 500                     | 120                       |
| E 9F10 AM4  | 4                    | 500                     | 120                       |
| E 9F10 AM6  | 6                    | 500                     | 120                       |
| E 9F10 AM8  | 8                    | 500                     | 120                       |
| E 9F10 AM10 | 10                   | 500                     | 120                       |
| E 9F10 AM12 | 12                   | 500                     | 120                       |
| E 9F10 AM16 | 16                   | 500                     | 120                       |
| E 9F10 AM20 | 20                   | 500                     | 120                       |
| E 9F10 AM25 | 25                   | 400                     | 120                       |
| E 9F10 AM32 | 32                   | 400                     | 120                       |

Protection and safety

Cylindrical fuses E 9F aM



E 9F14 aM

E 9F14 aM cylindrical fuses 14 x 51 mm

| Type        | Rated current<br>[A] | Rated voltage<br>[V AC] | Breaking capacity<br>[kA] |
|-------------|----------------------|-------------------------|---------------------------|
| E 9F14 AM1  | 1                    | 690                     | 120                       |
| E 9F14 AM2  | 2                    | 690                     | 120                       |
| E 9F14 AM4  | 4                    | 690                     | 120                       |
| E 9F14 AM6  | 6                    | 690                     | 120                       |
| E 9F14 AM8  | 8                    | 690                     | 120                       |
| E 9F14 AM10 | 10                   | 690                     | 120                       |
| E 9F14 AM12 | 12                   | 690                     | 120                       |
| E 9F14 AM16 | 16                   | 690                     | 120                       |
| E 9F14 AM20 | 20                   | 690                     | 120                       |
| E 9F14 AM25 | 25                   | 690                     | 120                       |
| E 9F14 AM32 | 32                   | 500                     | 120                       |
| E 9F14 AM40 | 40                   | 500                     | 120                       |
| E 9F14 AM45 | 45                   | 500                     | 120                       |
| E 9F14 AM50 | 50                   | 500                     | 120                       |



E 9F22 aM

E 9F22 aM cylindrical fuses 22 x 58 mm

| Type         | Rated current<br>[A] | Rated voltage<br>[V AC] | Breaking capacity<br>[kA] |
|--------------|----------------------|-------------------------|---------------------------|
| E 9F22 AM6   | 6                    | 690                     | 120                       |
| E 9F22 AM8   | 8                    | 690                     | 120                       |
| E 9F22 AM10  | 10                   | 690                     | 120                       |
| E 9F22 AM12  | 12                   | 690                     | 120                       |
| E 9F22 AM16  | 16                   | 690                     | 120                       |
| E 9F22 AM20  | 20                   | 690                     | 120                       |
| E 9F22 AM25  | 25                   | 690                     | 120                       |
| E 9F22 AM32  | 32                   | 690                     | 120                       |
| E 9F22 AM40  | 40                   | 690                     | 120                       |
| E 9F22 AM50  | 50                   | 690                     | 120                       |
| E 9F22 AM63  | 63                   | 690                     | 120                       |
| E 9F22 AM80  | 80                   | 690                     | 120                       |
| E 9F22 AM100 | 100                  | 500                     | 120                       |
| E 9F22 AM125 | 125                  | 500                     | 120                       |

## Protection and safety

### Cylindrical fuses E 9F aM



E 9F8

#### E 9F aM cylindrical fuses

The E 9F aM cylindrical fuses, coupled with E 90 and E 90 50/125 fuse disconnectors, are the ideal solution for protection against overload and short-circuit. They feature a delayed tripping curve and are therefore ideal for protecting industrial motors that require high inrush current during the starting phase. The E 9F aM series is available for all the main sizes (8.5 x 31.5 mm, 10.3 x 38 mm, 14 x 51 mm e 22 x 58 mm) and with a wide range of rated current values (from 1 A to 125 A and up to 690 V AC). All the E 9F series fuses conform to the RoHS directive and are type-approved in accordance with the most important international naval marks.

#### E 9F 8 aM cylindrical fuses 8.5 x 31.5 mm

| Rated current | Size     | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece | Pack<br>unit |
|---------------|----------|----------------|---------------|-----------------|---------------------|-------------------|--------------|
| In            | mm       | EAN            | Type code     | Order code      |                     | kg                | pc.          |
| 1             | 8.5x31.5 | 772835         | E 9F8 AM1     | 2CSM277283R1801 |                     | 0.004             | 10           |
| 2             | 8.5x31.5 | 770633         | E 9F8 AM2     | 2CSM277063R1801 |                     | 0.004             | 10           |
| 4             | 8.5x31.5 | 587439         | E 9F8 AM4     | 2CSM258743R1801 |                     | 0.004             | 10           |
| 6             | 8.5x31.5 | 575634         | E 9F8 AM6     | 2CSM257563R1801 |                     | 0.004             | 10           |
| 8             | 8.5x31.5 | 563839         | E 9F8 AM8     | 2CSM256383R1801 |                     | 0.004             | 10           |
| 10            | 8.5x31.5 | 586531         | E 9F8 AM10    | 2CSM258653R1801 |                     | 0.004             | 10           |

#### E 9F 10 aM cylindrical fuses 10.3 x 38 mm

| Rated current | Size    | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece | Pack<br>unit |
|---------------|---------|----------------|---------------|-----------------|---------------------|-------------------|--------------|
| In            | mm      | EAN            | Type code     | Order code      |                     | kg                | pc.          |
| 0.5           | 10.3x38 | 574736         | E 9F10 AM05   | 2CSM257473R1801 |                     | 0.007             | 10           |
| 1             | 10.3x38 | 562931         | E 9F10 AM1    | 2CSM256293R1801 |                     | 0.007             | 10           |
| 2             | 10.3x38 | 775638         | E 9F10 AM2    | 2CSM277563R1801 |                     | 0.007             | 10           |
| 4             | 10.3x38 | 773436         | E 9F10 AM4    | 2CSM277343R1801 |                     | 0.007             | 10           |
| 6             | 10.3x38 | 771234         | E 9F10 AM6    | 2CSM277123R1801 |                     | 0.007             | 10           |
| 8             | 10.3x38 | 587330         | E 9F10 AM8    | 2CSM258733R1801 |                     | 0.007             | 10           |
| 10            | 10.3x38 | 575535         | E 9F10 AM10   | 2CSM257553R1801 |                     | 0.007             | 10           |
| 12            | 10.3x38 | 563730         | E 9F10 AM12   | 2CSM256373R1801 |                     | 0.007             | 10           |
| 16            | 10.3x38 | 586432         | E 9F10 AM16   | 2CSM258643R1801 |                     | 0.007             | 10           |
| 20            | 10.3x38 | 574637         | E 9F10 AM20   | 2CSM257463R1801 |                     | 0.007             | 10           |
| 25            | 10.3x38 | 562832         | E 9F10 AM25   | 2CSM256283R1801 |                     | 0.007             | 10           |
| 32            | 10.3x38 | 775539         | E 9F10 AM32   | 2CSM277553R1801 |                     | 0.007             | 10           |



E 9F10 aM



## Protection and safety

### Cylindrical fuses E 9F aM



E 9F14 aM

#### E 9F 14 aM cylindrical fuses 14 x 51 mm

| Rated current | Size  | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece | Pack<br>unit |
|---------------|-------|----------------|---------------|-----------------|---------------------|-------------------|--------------|
| In            | mm    | EAN            | Type code     | Order code      |                     | kg                | pc.          |
| 1             | 14x51 | 575337         | E 9F14 AM1    | 2CSM257533R1801 |                     | 0.018             | 10           |
| 2             | 14x51 | 563532         | E 9F14 AM2    | 2CSM256353R1801 |                     | 0.018             | 10           |
| 4             | 14x51 | 586234         | E 9F14 AM4    | 2CSM258623R1801 |                     | 0.018             | 10           |
| 6             | 14x51 | 574439         | E 9F14 AM6    | 2CSM257443R1801 |                     | 0.018             | 10           |
| 8             | 14x51 | 562634         | E 9F14 AM8    | 2CSM256263R1801 |                     | 0.018             | 10           |
| 10            | 14x51 | 775331         | E 9F14 AM10   | 2CSM277533R1801 |                     | 0.018             | 10           |
| 12            | 14x51 | 773139         | E 9F14 AM12   | 2CSM277313R1801 |                     | 0.018             | 10           |
| 16            | 14x51 | 770930         | E 9F14 AM16   | 2CSM277093R1801 |                     | 0.018             | 10           |
| 20            | 14x51 | 587033         | E 9F14 AM20   | 2CSM258703R1801 |                     | 0.018             | 10           |
| 25            | 14x51 | 575238         | E 9F14 AM25   | 2CSM257523R1801 |                     | 0.018             | 10           |
| 32            | 14x51 | 563433         | E 9F14 AM32   | 2CSM256343R1801 |                     | 0.018             | 10           |
| 40            | 14x51 | 586135         | E 9F14 AM40   | 2CSM258613R1801 |                     | 0.018             | 10           |
| 45            | 14x51 | 574330         | E 9F14 AM45   | 2CSM257433R1801 |                     | 0.018             | 10           |
| 50            | 14x51 | 562535         | E 9F14 AM50   | 2CSM256253R1801 |                     | 0.018             | 10           |



E 9F22

#### E 9F 22 aM cylindrical fuses 22 x 58 mm

| Rated current | Size  | Bbn<br>8012542 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece | Pack<br>unit |
|---------------|-------|----------------|---------------|-----------------|---------------------|-------------------|--------------|
| In            | mm    | EAN            | Type code     | Order code      |                     | kg                | pc.          |
| 6             | 22x58 | 586036         | E 9F22 AM6    | 2CSM258603R1801 |                     | 0.048             | 10           |
| 8             | 22x58 | 574231         | E 9F22 AM8    | 2CSM257423R1801 |                     | 0.048             | 10           |
| 10            | 22x58 | 562436         | E 9F22 AM10   | 2CSM256243R1801 |                     | 0.048             | 10           |
| 12            | 22x58 | 775133         | E 9F22 AM12   | 2CSM277513R1801 |                     | 0.048             | 10           |
| 16            | 22x58 | 772934         | E 9F22 AM16   | 2CSM277293R1801 |                     | 0.048             | 10           |
| 20            | 22x58 | 770732         | E 9F22 AM20   | 2CSM277073R1801 |                     | 0.048             | 10           |
| 25            | 22x58 | 774938         | E 9F22 AM25   | 2CSM277493R1801 |                     | 0.048             | 10           |
| 32            | 22x58 | 772736         | E 9F22 AM32   | 2CSM277273R1801 |                     | 0.048             | 10           |
| 40            | 22x58 | 770534         | E 9F22 AM40   | 2CSM277053R1801 |                     | 0.048             | 10           |
| 50            | 22x58 | 594130         | E 9F22 AM50   | 2CSM259413R1801 |                     | 0.048             | 10           |
| 63            | 22x58 | 582335         | E 9F22 AM63   | 2CSM258233R1801 |                     | 0.048             | 10           |
| 80            | 22x58 | 570530         | E 9F22 AM80   | 2CSM257053R1801 |                     | 0.048             | 10           |
| 100           | 22x58 | 595434         | E 9F22 AM100  | 2CSM259543R1801 |                     | 0.048             | 10           |
| 125           | 22x58 | 583639         | E 9F22 AM125  | 2CSM258363R1801 |                     | 0.048             | 10           |

## Protection and safety

### Cylindrical fuses E 9F gPV



E 9F PV

| Type                      |      | E9F PV                           | E9F PV 1500                      |
|---------------------------|------|----------------------------------|----------------------------------|
| Reference standards       | -    | IEC 60269-6; ROHS 2002/98/CE, UL | IEC 60269-6; ROHS 2002/98/CE, UL |
| Rated current             | [A]  | 1...30                           | 4...32                           |
| Rated operational voltage | [V]  | 1000 DC                          | 1500 DC                          |
| Breaking capacity         | [kA] | 10                               | 50                               |
| Overall dimensions        | [mm] | 10.3 x 38                        | 10 x 85                          |

#### E 9F PV cylindrical fuses for photovoltaic applications

The E9F PV series of cylindrical fuses has been specifically designed for protecting direct current circuits up to 1500 V DC. Those fuses are the best way to protect the strings, inverters and surge arresters in photovoltaic installations.

The range of E9F PV fuses is available in the 10.3 x 38 mm size for up to 30 A rated current values at a nominal voltage of 1000 V DC or in the 10x85 mm size up to 32 A rated current at a nominal voltage of 1500 V DC.

#### E 9F PV cylindrical fuses 10.3 x 38 mm

| Rated current | Bbn 8012542 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|---------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| In            | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 1 A           | 134568      | E 9F1 PV      | 2CSM213456R1801 |               | 0.007          | 10        |
| 2 A           | 134667      | E 9F2 PV      | 2CSM213466R1801 |               | 0.007          | 10        |
| 3 A           | 134766      | E 9F3 PV      | 2CSM213476R1801 |               | 0.007          | 10        |
| 4 A           | 134865      | E 9F4 PV      | 2CSM213486R1801 |               | 0.007          | 10        |
| 5 A           | 134964      | E 9F5 PV      | 2CSM213496R1801 |               | 0.007          | 10        |
| 6 A           | 135060      | E 9F6 PV      | 2CSM213506R1801 |               | 0.007          | 10        |
| 7 A           | 135169      | E 9F7 PV      | 2CSM213516R1801 |               | 0.007          | 10        |
| 8 A           | 135268      | E 9F8 PV      | 2CSM213526R1801 |               | 0.007          | 10        |
| 10 A          | 135367      | E 9F10 PV     | 2CSM213536R1801 |               | 0.007          | 10        |
| 12 A          | 135466      | E 9F12 PV     | 2CSM213546R1801 |               | 0.007          | 10        |
| 15 A          | 135565      | E 9F15 PV     | 2CSM213556R1801 |               | 0.007          | 10        |
| 20 A          | 135664      | E 9F20 PV     | 2CSM213566R1801 |               | 0.007          | 10        |
| 25 A          | 135763      | E 9F25 PV     | 2CSM213576R1801 |               | 0.007          | 10        |
| 30 A          | 135862      | E 9F30 PV     | 2CSM213586R1801 |               | 0.007          | 10        |

#### E9F PV cylindrical fuses 10 x 85 mm

| Rated current | Bbn 8012542 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|---------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| In            | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 4 A           | 339410      | E9F4 PV1500   | 2CSM233941R1801 |               | 0.010          | 5         |
| 5 A           | 052852      | E9F5 PV1500   | 2CSM205285R1801 |               | 0.010          | 5         |
| 6 A           | 052951      | E9F6 PV1500   | 2CSM205295R1801 |               | 0.010          | 5         |
| 7 A           | 053057      | E9F7 PV1500   | 2CSM205305R1801 |               | 0.010          | 5         |
| 8 A           | 053156      | E9F8 PV1500   | 2CSM205315R1801 |               | 0.010          | 5         |
| 10 A          | 053255      | E9F10 PV1500  | 2CSM205325R1801 |               | 0.010          | 5         |
| 12 A          | 053354      | E9F12 PV1500  | 2CSM205335R1801 |               | 0.010          | 5         |
| 15 A          | 053453      | E9F15 PV1500  | 2CSM205345R1801 |               | 0.010          | 5         |
| 20 A          | 068754      | E9F20 PV1500  | 2CSM206875R1801 |               | 0.010          | 5         |
| 25 A          | 068952      | E9F25 PV1500  | 2CSM206895R1801 |               | 0.010          | 5         |
| 30 A          | 069058      | E9F30 PV1500  | 2CSM206905R1801 |               | 0.010          | 5         |
| 32 A          | 069256      | E9F32 PV1500  | 2CSM206925R1801 |               | 0.010          | 5         |

## Protection and safety

### ILTS-E D0 Fuse-switch-disconnectors



ILTS-E1



ILTS-E1



ILTS-E3



ILTS-E/H11



ILTS-E/RE

#### Technical data

|                                                     |                                                                                                                                                                                                                                  |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference standards                                 | EN 60947-1, EN 60947-3                                                                                                                                                                                                           |
| Approval                                            | VDE                                                                                                                                                                                                                              |
| No. of poles                                        | 1, 2, 3 pole and 3 pole+N                                                                                                                                                                                                        |
| Rated voltage                                       | 400 V AC, per pole 65 V DC (2 pole 130 V DC)                                                                                                                                                                                     |
| Operating current I <sub>n</sub>                    | acc. to fuse link D0 2-63 A                                                                                                                                                                                                      |
| Rated frequency                                     | 50/60 Hz                                                                                                                                                                                                                         |
| Rated short circuit capacity                        | 50 kA for AC (8 kA for DC)                                                                                                                                                                                                       |
| Power loss                                          | 5.5 W/pole                                                                                                                                                                                                                       |
| Utilization category                                | AC 22 B: 400 V AC 63 A according to IEC/EN 60947-3 (all versions)<br>DC 22 B: 65 V DC 63 A according to IEC/EN 60947-3 (1 pole)<br>DC 22 B: 130 V DC 63 A according to IEC/EN 60947-3 (2 pole)                                   |
| Leakage current resistance                          | CTI 200                                                                                                                                                                                                                          |
| Ambient temperature                                 | - 5 °C up to + 40 °C                                                                                                                                                                                                             |
| Casing material                                     | thermoplast; halogen-, phosphor-, silicone- and CFC-free                                                                                                                                                                         |
| Fire classification                                 | UL 94 (self-extinguishing)                                                                                                                                                                                                       |
| Shock protection                                    | according to DIN EN 50 274 (DIN VDE 0660 Part 514) BGV A3                                                                                                                                                                        |
| Connection capacity                                 | 1.5 – 35 mm <sup>2</sup> finely stranded, directly clamped or with connector sleeve<br>Twin-function terminal for simultaneous connection of two conductors (35 mm <sup>2</sup> and 16 mm <sup>2</sup> ) or conductor and busbar |
| Pick-up torque                                      | 2.5 – 3 Nm                                                                                                                                                                                                                       |
| <b>Auxiliary switch indicating contact position</b> |                                                                                                                                                                                                                                  |
| Contacts                                            | 1 NO contact + 1 NC contact                                                                                                                                                                                                      |
| Contact rating                                      | AC 13: 2 A/400 V, 6 A/230 V<br>DC 13: 1 A/220 V, 6 A/24 V                                                                                                                                                                        |

#### Switch-disconnector ILTS-E for D0 2-63 A fuse links “Drawer technology”

User-friendly fuse-switch-disconnector in “drawer technology”:

- Snap action
- Fuse can be replaced only if the system is de-energized.
- Captive fuse carrier
- For D02 fuse links, D01 fuse link with reducing piece
- Twin box terminal on both sides
- User-friendly installation of cross-wiring in lower terminal
- Auxiliary switch to indicate switching position

#### Fuse-switch-disconnector

| Poles                    | Bbn<br>4016779 | Order details |            | Price<br>1 piece | Weight<br>1 piece | Pack<br>unit |
|--------------------------|----------------|---------------|------------|------------------|-------------------|--------------|
|                          |                | EAN           | Type code  | Order code       | kg                | pc.          |
| 1                        |                | 65347 3       | ILTS-E1    | 2CDE101001R1901  | 0.210             | 3            |
| 2                        |                | 65348 0       | ILTS-E2    | 2CDE102001R1901  | 0.420             | 2            |
| 3                        |                | 65349 7       | ILTS-E3    | 2CDE103001R1901  | 0.630             | 1            |
| 3+N*                     |                | 65350 3       | ILTS-E3+N  | 2CDE103101R1901  | 0.790             | 1            |
| Reducing piece           |                | 65407 4       | ILTS-E/RE  | 2CDE000011R1901  | 0.001             | 20           |
| Auxiliary switch 1NO/1NC |                | 65671 9       | ILTS-E/H11 | 2CDE000012R1901  | 0.050             | 1            |

\* N conductor leading make contact, late closing

## Protection and safety

### ISS D0 Fuse carriers



ISS 16/1



ISS 63/1



ISS 16/3



ISS 63/3

#### Technical features

| Size                                       | D01                     | D02                     |
|--------------------------------------------|-------------------------|-------------------------|
| Current type                               | AC (50 Hz)/DC           | AC (50 Hz)/DC           |
| Rated voltage                              | 400 V AC/250 V DC       | 400 V AC/250 V DC       |
| Rated current                              | 16 A                    | 63 A                    |
| Rated short-circuit current                | 50 kA (AC)<br>8 kA (DC) | 50 kA (AC)<br>8 kA (DC) |
| For fuse links with losses per phase up to | 2.5 W                   | 5.5 W                   |

#### D0 fuse carrier ISS with integrated red cover

D0 fuse base for NEOZED fuse links D01/D02. Touch-protection according to DGUV regulation 3. Twin box terminal on both sides for connection of two different conductor cross-sections or conductors and busbars.

Conductor cross-sections incoming and outgoing 1.5 – 35 mm<sup>2</sup>, stranded. With integrated terminal cover. A separate cover for distribution board installation is not required.

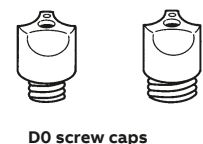
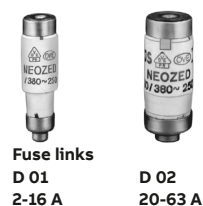
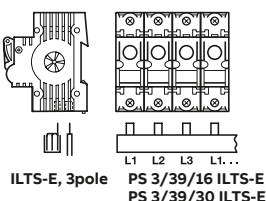
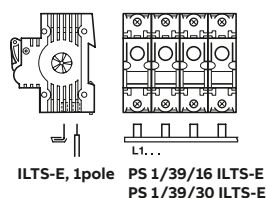
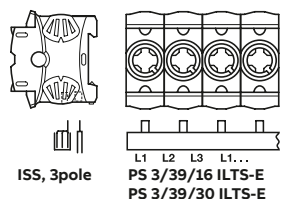
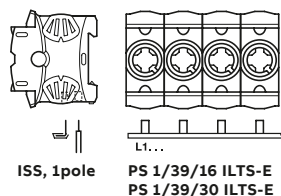
- IEC 60269-3/VDE 0636-3
- 1/3-pole
- Fuse links, connector sleeves VDE 0636-3
- Snap clip device for rail mounting to EN 60715
- Twin function terminal
- Connection cross-section 1.5 – 35 mm<sup>2</sup>
- Tightening torque 2.5 – 3 Nm

#### D0 fuse carrier

| Poles | Screw cover/fuse | Bbn<br>4016779 | Order details |                 | Price<br>1<br>piece | Weight<br>1 piece<br>kg | Pack<br>unit<br>pc. |
|-------|------------------|----------------|---------------|-----------------|---------------------|-------------------------|---------------------|
|       |                  |                | EAN           | Type code       |                     |                         |                     |
| 1     | E14 D01          | 65579 8        | ISS 16/1      | 2CDE111001R1902 |                     | 0.08                    | 9                   |
| 1     | E18 D02          | 65581 1        | ISS 63/1      | 2CDE161001R1902 |                     | 0.08                    | 9                   |
| 3     | E14 D01          | 65580 4        | ISS 16/3      | 2CDE113001R1902 |                     | 0.24                    | 9                   |
| 3     | E18 D02          | 65582 8        | ISS 63/3      | 2CDE163001R1902 |                     | 0.24                    | 9                   |

## Protection and safety

### Busbars and accessories for ILTS-E and ISS



#### Busbars for fuse-switch-disconnector ILTS-E and fuse carrier ISS: 1pole or 3pole

End caps:

PS 1/39/16 ILTS-E: END 1.1

PS 1/39/30 ILTS-E: PS-END 3.2

PS 3/39/16 ILTS-E: PS-END

PS 3/39/30 ILTS-E: PS-END 3

#### Busbars

| Cross-section   | Length | No. of poles | Cu factor | Bbn 4012233            | Order details      |                 | Price 1 piece | Weight 1 piece | Pack unit |
|-----------------|--------|--------------|-----------|------------------------|--------------------|-----------------|---------------|----------------|-----------|
| mm <sup>2</sup> | mm     |              |           | EAN                    | Type code          | Order code      |               | kg             | pc.       |
| 16              | 1040   | 39 x 1       | 0.43      | 66956 6 <sup>(1)</sup> | PS 1/39/16 ILTS-E  | 2CDL010101R1639 | 15            | 0.23           | 10        |
| 30              | 1040   | 39 x 1       | 0.74      | 66957 3 <sup>(1)</sup> | PS 1/39/30 ILTS-E* | 2CDL010101R3039 | 15            | 0.487          | 5         |
| 16              | 1040   | 39 x 3       | 1.3       | 66958 0 <sup>(1)</sup> | PS 3/39/16 ILTS-E  | 2CDL030101R1639 | 15            | 0.59           | 10        |
| 30              | 1040   | 39 x 3       | 1.95      | 66959 7 <sup>(1)</sup> | PS 3/39/30 ILTS-E* | 2CDL030101R3039 | 15            | 1.222          | 5         |

<sup>(1)</sup> bbn-Nr. 40 16779 \* Not compatible with ISS

#### End caps

| Cross-section   | Length | No. of poles | Cu factor | Bbn 4016779 | Order details |                  | Price 1 piece | Weight 1 piece | Pack unit |
|-----------------|--------|--------------|-----------|-------------|---------------|------------------|---------------|----------------|-----------|
| mm <sup>2</sup> | mm     |              |           | EAN         | Type code     | Order code       |               | kg             | pc.       |
|                 |        | 1            |           | 63891 3     | END 1.1       | 2CDL2000011R0011 | 15            | 0.001          | 50        |
|                 |        | 2/3          |           | 51472 9     | PS-END        | 2CDL2000001R0001 | 15            | 0.001          | 50        |
|                 |        | 2/3          |           | 65430 2     | PS-END 3      | 2CDL2000001R3001 | 15            | 0.001          | 50        |
|                 |        | 1            |           | 66960 3     | PS-END 3.2    | 2CDL2000001R3003 | 15            | 0.001          | 50        |

#### D0 fuses and accessories

##### D0 fuse links to DIN VDE 0636-3, IEC/EN 60269-3 suitable for D01/E14

| Rated current | Colour code | Power loss | Bbn 4012233 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|---------------|-------------|------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| A             |             | W          | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 2             | pink        | 1.5        | 60480 7     | D01 x 2 gG    | GMN 977120P0011 | 13            | 0.006          | 10        |
| 4             | brown       | 1.5        | 60490 6     | D01 x 4 gG    | GMN 977120P0012 | 13            | 0.006          | 10        |
| 6             | green       | 1.5        | 60500 2     | D01 x 6 gG    | GMN 977120P0013 | 13            | 0.006          | 10        |
| 10            | red         | 1.8        | 60510 1     | D01 x 10 gG   | GMN 977120P0014 | 13            | 0.006          | 10        |
| 16            | grey        | 2.1        | 60520 0     | D01 x 16 gG   | GMN 977120P0015 | 13            | 0.006          | 10        |

##### Suitable for D02/E18

| Rated current | Colour code | Power loss | Bbn 4012233 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|---------------|-------------|------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| A             |             | W          | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 20            | blue        | 2.3        | 60530 9     | D02 x 20 gG   | GMN 977120P0017 | 13            | 0.011          | 10        |
| 25            | yellow      | 2.6        | 60540 8     | D02 x 25 gG   | GMN 977120P0018 | 13            | 0.012          | 10        |
| 35            | black       | 2.9        | 60550 7     | D02 x 35 gG   | GMN 977120P0019 | 13            | 0.013          | 10        |
| 50            | white       | 3.5        | 60560 6     | D02 x 50 gG   | GMN 977120P0020 | 13            | 0.014          | 10        |
| 63            | copper      | 4.2        | 60570 5     | D02 x 63 gG   | GMN 977120P0021 | 13            | 0.015          | 10        |

## Protection and safety

### Busbars and accessories for ILTS-E and ISS



Connector sleeves  
D 01 2-10 A    D 02 2-50 A



FD 1713

#### D0 screw caps acc. to DIN VDE 0636-3, IEC/EN 60269-3, 400 V AC Plastic version, RAL 7037

| Rated current | Colour code | Power loss | Bbn 4012233 | Order details    |                 | Price 1 piece | Weight 1 piece | Pack unit |
|---------------|-------------|------------|-------------|------------------|-----------------|---------------|----------------|-----------|
| A             |             | W          | EAN         | Type code        | Order code      |               | kg             | pc.       |
| 16            | for D01     | –          | 60790 7     | D01 DIN 49 525 K | GMN 977130P0011 | 13            | 0.015          | 20        |
| 63            | for D02     | –          | 60800 3     | D02 DIN 49 525 K | GMN 977130P0012 | 13            | 0.015          | 20        |

#### D0 connector sleeves to DIN VDE 0636-3, IEC/EN 60269-3 Suitable for D01/E14

| Rated current | Colour code | Power loss | Bbn 4012233 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|---------------|-------------|------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| A             |             | W          | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 2             | pink        | –          | 60600 9     | D01 x 2       | GMN 977125P0001 | 13            | 0.001          | 50        |
| 4             | brown       |            | 60610 8     | D01 x 4       | GMN 977125P0002 | 13            | 0.001          | 50        |
| 6             | green       |            | 60620 7     | D01 x 6       | GMN 977125P0003 | 13            | 0.001          | 50        |
| 10            | red         |            | 60630 6     | D01 x 10      | GMN 977125P0004 | 13            | 0.001          | 50        |

#### Suitable for D02/E18

| Rated current | Colour code | Power loss | Bbn 4012233 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|---------------|-------------|------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| A             |             | W          | EAN         | Type code     | Order code      |               | kg             | pc.       |
| 2             | pink        | –          | 60640 5     | D02 x 2       | GMN 977125P0011 | 13            | 0.001          | 50        |
| 4             | brown       |            | 60650 4     | D02 x 4       | GMN 977125P0012 | 13            | 0.001          | 50        |
| 6             | green       |            | 60660 3     | D02 x 6       | GMN 977125P0013 | 13            | 0.001          | 50        |
| 10            | red         |            | 60670 2     | D02 x 10      | GMN 977125P0014 | 13            | 0.001          | 50        |
| 16            | grey        |            | 60680 1     | D02 x 16      | GMN 977125P0015 | 13            | 0.001          | 50        |
| 20            | blue        |            | 60690 0     | D02 x 20      | GMN 977125P0016 | 13            | 0.001          | 50        |
| 25            | yellow      |            | 60700 6     | D02 x 25      | GMN 977125P0017 | 13            | 0.001          | 50        |
| 35            | black       |            | 60710 5     | D02 x 35      | GMN 977125P0018 | 13            | 0.001          | 50        |
| 50            | white       |            | 60720 4     | D02 x 50      | GMN 977125P0019 | 13            | 0.001          | 50        |

#### Spring clip for use of D01 fuses in D02 screw caps

| Rated current | Colour code | Power loss | Bbn 4012233 | Order details |                 | Price 1 piece | Weight 1 piece | Pack unit |
|---------------|-------------|------------|-------------|---------------|-----------------|---------------|----------------|-----------|
| A             |             | W          | EAN         | Type code     | Order code      |               | kg             | pc.       |
|               |             |            | 15120 7     | FD 1713       | GMN 977130P0004 | 13            | 0.001          | 50        |