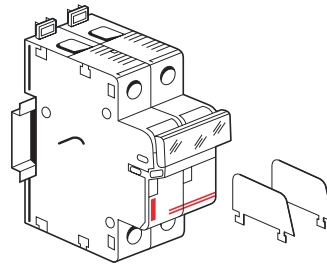
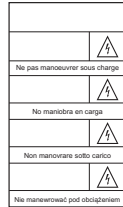


4 146 81



4 146 82

| CONTENTS | PAGES |
|-----------------------------|-------|
| 1. General features | 1 |
| 2. Overall dimensions | 1 |
| 3. Technical features..... | 1 |
| 4. Materials | 2 |
| 5. Installation | 2 |
| 6. Conformity | 2 |
| 7. Setup..... | 2 |
| 8. Maintenance | 3 |
| 9. Accessories | 4 |

1. GENERAL FEATURES

1.1 Brief description

- Single pole (1P) and 2-pole (2P) photovoltaic (PV) fuse carrier for isolating and protecting DC circuits from PV panels for applications up to 1000V.
- For 10 x 38 mm cylindrical fuse
- Supplied with dividers (Cat No 4 146 82) and safety labels : « Do not operate under load ».

1.2 Use

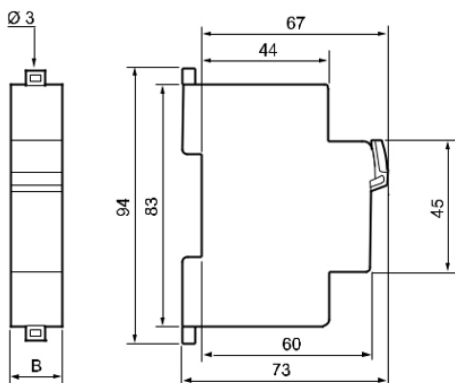
- Use recommended according to recommendations in guide UTE C 15-712-1.
- Use with fuses specifically designed for the DC side of PV applications.

Recommended used :

- 1P fuse carrier : for installations with polarised PV panels (with earthing of one of the polarities), protection of the poles not connected to earth for each PV string.

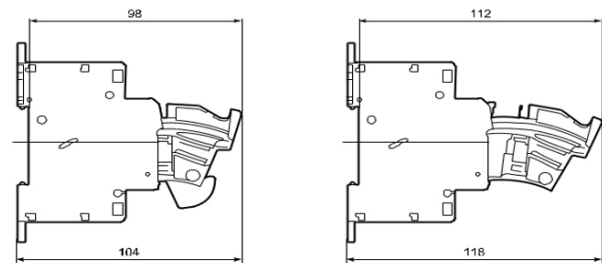
- 2P fuse carrier : for protection of both poles of each string of non-polarised PV panels.

2. OVERALL DIMENSIONS



| | 1P | 2P |
|---|------|------|
| B | 17.7 | 35.5 |

2. OVERALL DIMENSIONS (continued)



3. TECHNICAL FEATURES

| | 4 146 81 | 4 146 82 |
|--|-----------------------|-----------------------|
| Operating voltage (Ue)* | 1000 V $\overline{=}$ | 1000 V $\overline{=}$ |
| Operating current (Ie) | 20 A | 20 A |
| Number of protected poles | 1 | 2 |
| Utilisation category | DC 20B DC-PV0 | DC 20B DC-PV0 |
| Max short-circuit current (Isc) | 50 kA | 50 kA |
| Rated impulse withstand voltage (Uimp) | 6 kV | 6 kV |
| Degree of pollution | 2 | 2 |
| Operating temperature | -5°C +40°C | -5°C +40°C |
| Storage temperature | -25°C +70°C | -25°C +70°C |
| Impact resistance | IK04 | IK04 |
| Protection index | IP2X | IP2X |

3. TECHNICAL FEATURES (continued)

3.1 Apparatus downgrading

It can be justified to downgrade the apparatus when the conditions of use become more hard :

- Room temperature higher than 35°C : to downgrade the fuse of a grade by 10°C (UTE guide C 20-051, NF IEC 60943, guide to over heating)
- Juxtaposed apparatus and simultaneous operations.

To apply to the base rated current the corresponding coefficient :

| Number of juxtaposed poles | Coefficient |
|----------------------------|-------------|
| 1 - 2 or 3 poles | 1 |
| 4 - 5 or 6 poles | 0,8 |
| 7 - 8 or 9 poles | 0,7 |
| 10 poles and more | 0,6 |

(NF C 63421, IEC/EN 60439-1, table 1)

Permanent mode (more than 8 hours per day) : it can be to downgrade the base of a size.

4. MATERIALS

| | | | |
|----------|---------------------------------------|--------------------|---------------|
| Housing | Reinforced polybutylene terephthalate | Density | 1,62 to 1,70 |
| | | Max tensile stress | > 100 MPa |
| | | Bending modulus | > 9,50 GPa |
| | | Glow-wire | 960°C / 5s |
| | | Oxygen index | > 30 |
| | | Color | Grey RAL 7035 |
| Screws | Zinc-plated bichromate steel | | |
| Contacts | Copper with silver track | | |

5. INSTALLATION

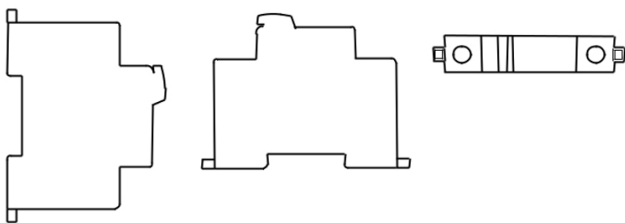
Mounting :

- On EN 50.022 or EN 60.715 symmetrical rail
- With Ø3 screws on plate at each end with clips disengaged

Power supply :

- Via the top
- Via the bottom

Operating position : vertical / horizontal / side



Subject to use fuses Legrand brand

Connection : «solar» cables

5. INSTALLATION (continued)

| | 1P / 2P |
|-----------------------------|---------------------------|
| Permitted conductors | |
| - Flexible with cable ends | 1,5 to 10 mm ² |
| - Flexible | 4 to 10 mm ² |
| Tools required | |
| - Flat screwdriver | 4 to 5,5 mm |
| - Phillips screwdriver | PZ2 |
| Tightening torque | |
| - Min | 1,8 Nm |
| - Max | 3 Nm |
| - Recommended | 2,2 Nm |

Cage terminals, with pozidriv mixed disengageable and captive screws.

6. CONFORMITY

Products conform to standards :

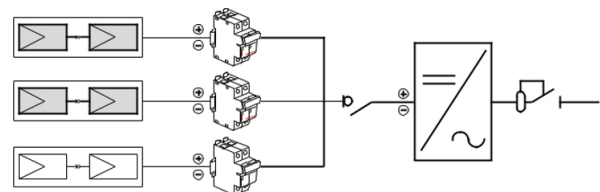
- IEC/EN 60269-1
- IEC/EN 60947-3

7. SETUP

7.1 General principle

7.1.1 Installation with non-polarised PV panels

For PV applications based on the use of non-polarised panels, neither of the polarities of the panels is connected to earth. Both the polarities of the panels must be protected.



7.1.2 Installation with polarised PV panels

For PV applications based on the use of polarised panels, one of the polarities of the panels is connected to the earth of the installation (in accordance with the recommendations of the manufacturers of the PV panels).

For each string of polarised panels, the conductors must be protected as follows :

- Conductors not connected to earth : protection by single pole fuse carrier.

- Panels with direct connection to earth (direct earthing with no intermediate resistor) : protection of all these conductors with a single fuse and a single pole fuse carrier.

Cables connected to earth :

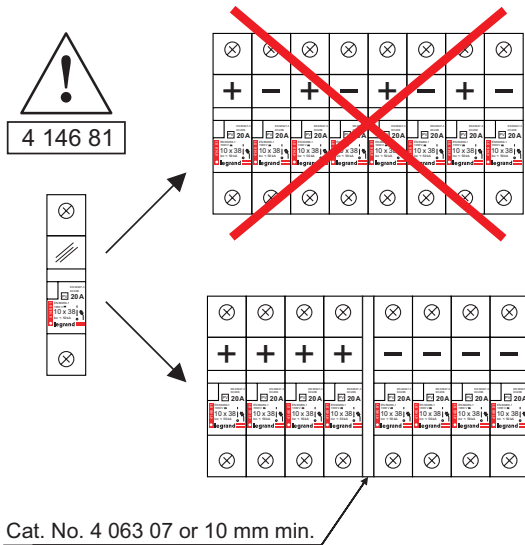
Polarised panels must be earthed at a single point for all the conductors of the PV generator (PV strings associated with the same inverter or the same MPPT). This point must be located upstream of the inverter's breaking and isolating device (isolating switch) in order to maintain the earthing of the panels even during maintenance of the inverter and the panels.

The cross-section of the earthing conductor must be appropriate for the protection device breaking the fault current (min 4mm² copper or equivalent). The rating of the protection device must be chosen according to the technology of the PV modules and the area of the PV array.

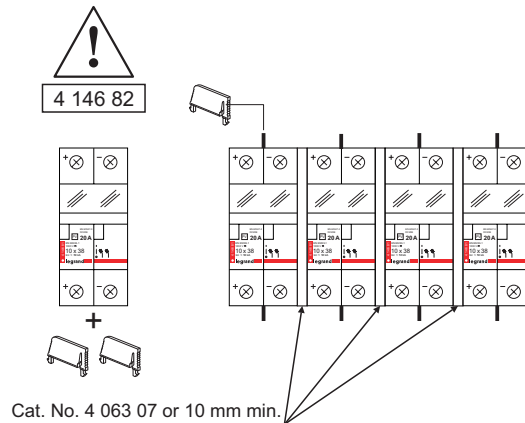
7. SETUP (continued)

7.2 Usage limits

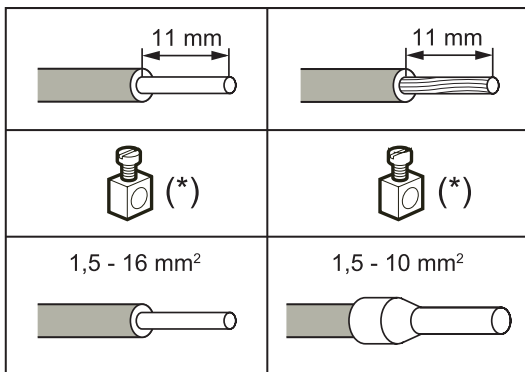
Single pole fuse carrier



2-pole fuse carrier



7.3 Connections



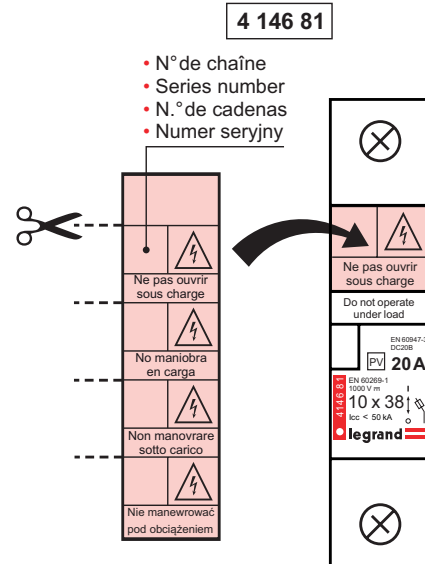
(*) Min. : 2 Nm

7. SETUP (continued)

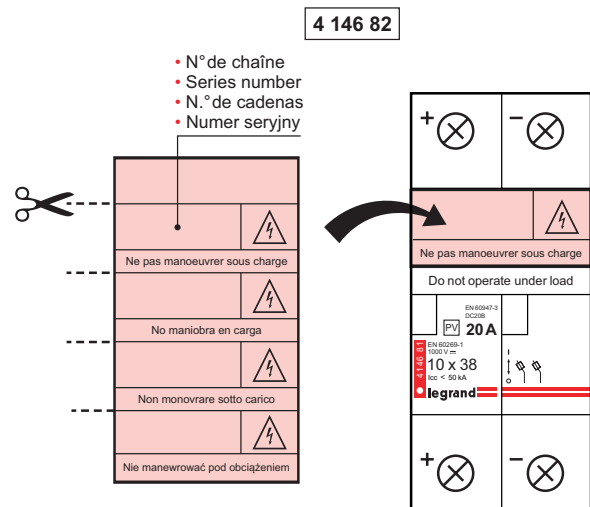
7.4 Labelling and safety markings

In accordance with guide UTE C 15-712, a « Do not open under load » label must be affixed to the fuse carriers.

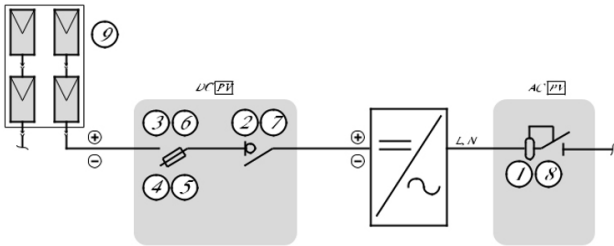
- 1P fuse carrier



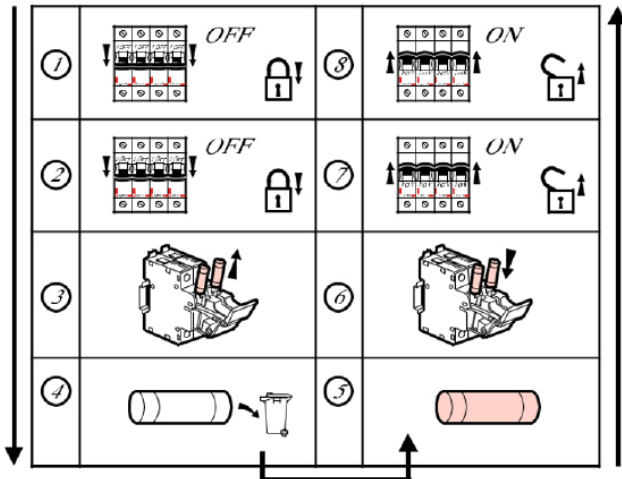
- 2P fuse carrier



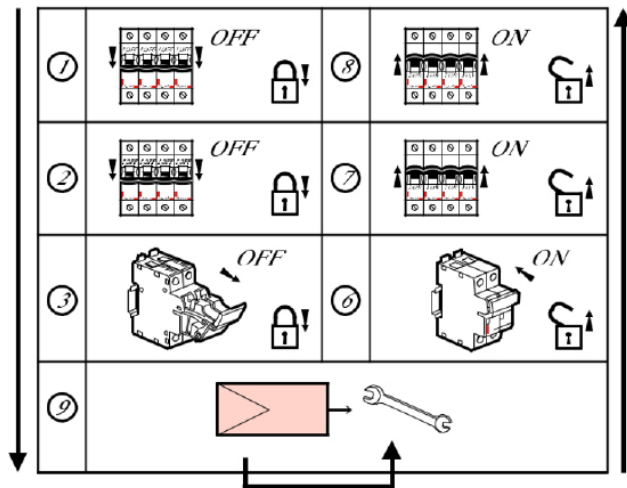
8. MAINTENANCE



Replacement of fuses



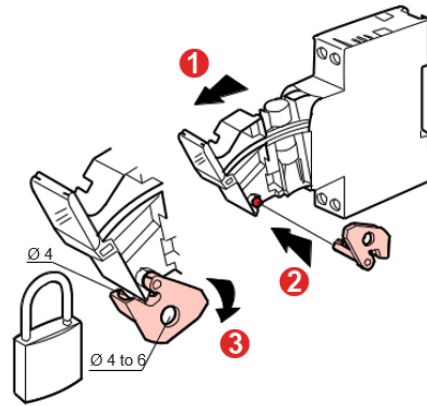
Maintenance on panels



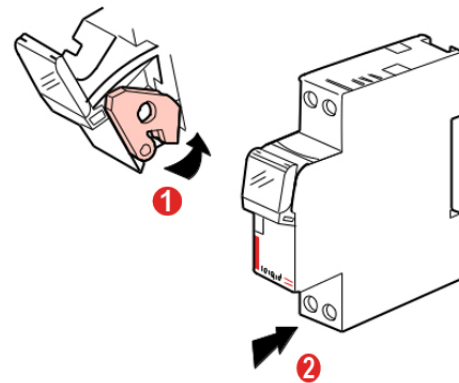
9. ACCESSORIES

9.1 Padlocking accessory

Cat. No. : 0 057 99

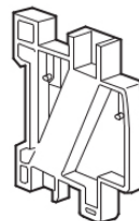


Ø5 mm padlock - Cat. No. 4 063 13
 Ø6 mm padlock - Cat. No. 0 227 97



9.2 Separation module (0.5 module)

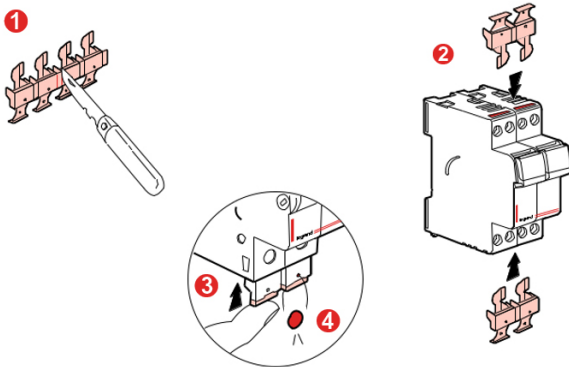
Cat. No. : 4 063 07



9. ACCESSORIES (continued)

■ 9.3 Sealable screw cover (4 separable poles)

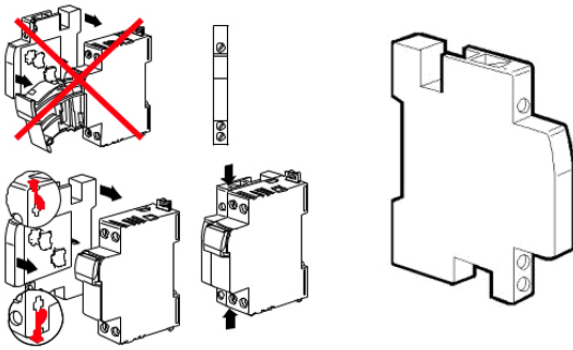
Cat. No. : 4 063 04



■ 9.4 Auxiliary

N/C + N/O early break and signalling auxiliary 5 A – 250 V (0.5 module)

Cat. No. : 0 057 96

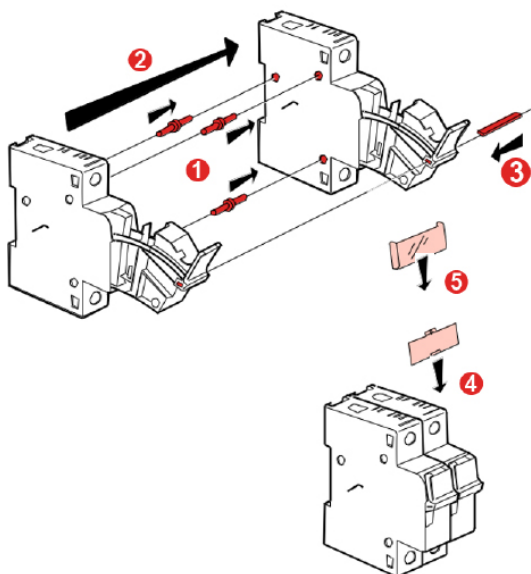


■ 9.5 Joining assembly

2-pole Cat. No. : 0 057 92

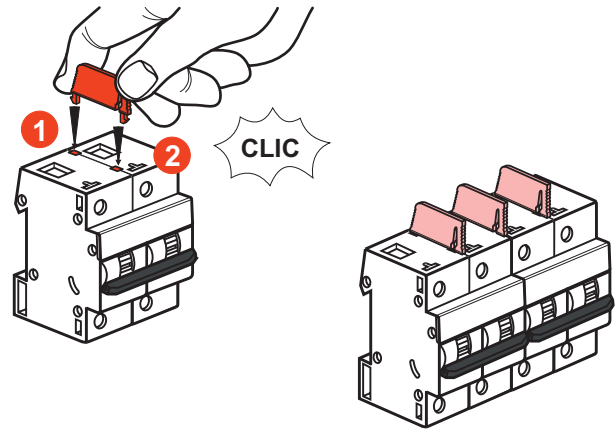
3-pole Cat. No. : 0 057 93

4-pole Cat. No. : 0 057 94



■ 9.6 Pole separation divider

Cat. No. : 4 063 05



■ 9.7 Universal prong-type busbars 4 049 26/37

Can be used up to 1000V to group together strings of photovoltaic panels with same polarity on the DC side with single pole fuse carriers Cat. No. 4 146 81.

Note : the ends of the busbars must be equipped with the protection accessory Cat. No. 4 049 89.

Insert a spacing module Cat. No. 4 063 07 between 2 consecutive units with different polarities.

