

# Webinar - Half-Cut Cell Modules

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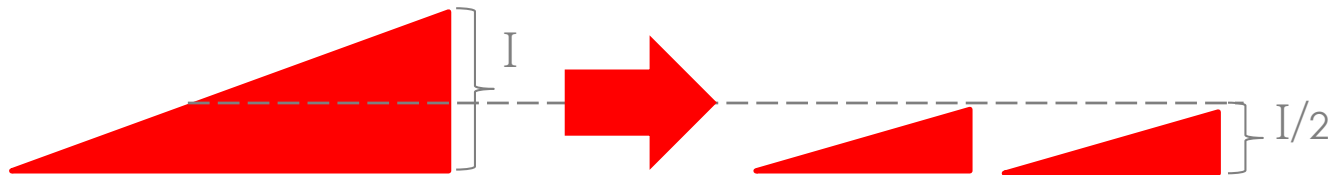
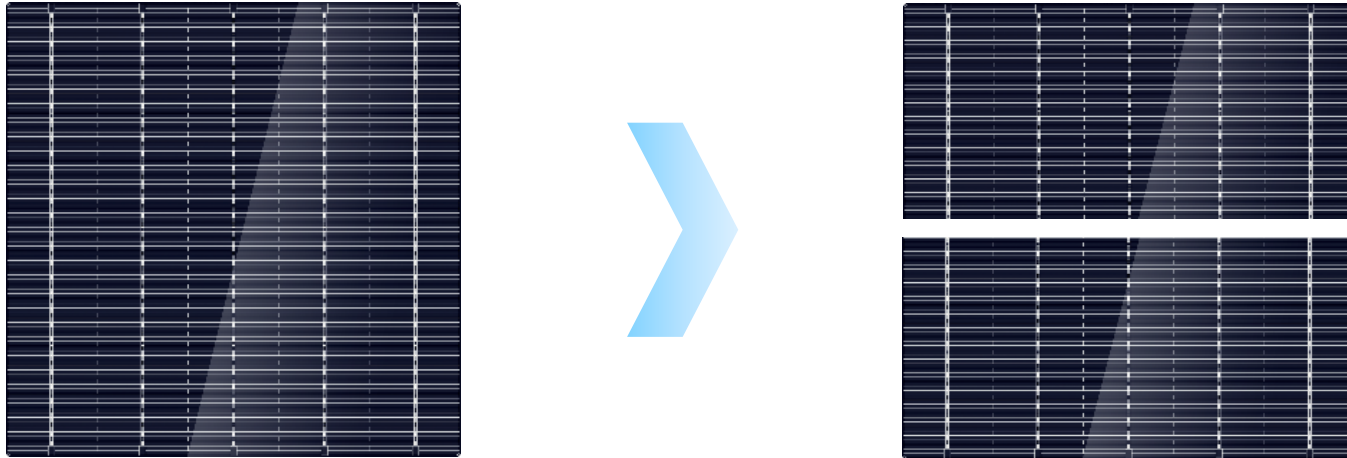
*30 October 2018*

# From Full to Half-Cut Cell

## Increase of Module Efficiency

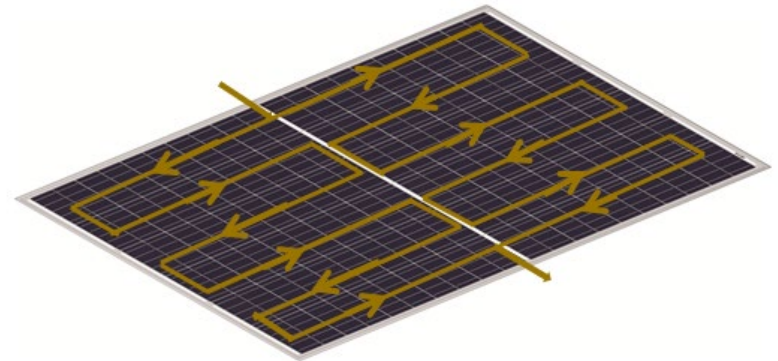
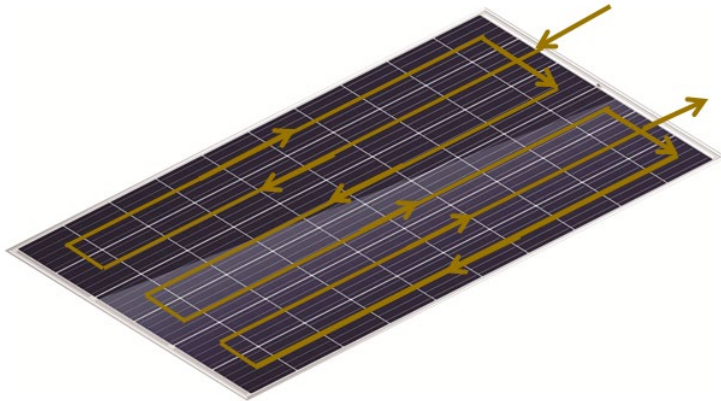
# From Full Cells to Half-Cut Cells

$$\text{Power loss (Heat)} = \text{Resistance} \times \text{Current}^2$$



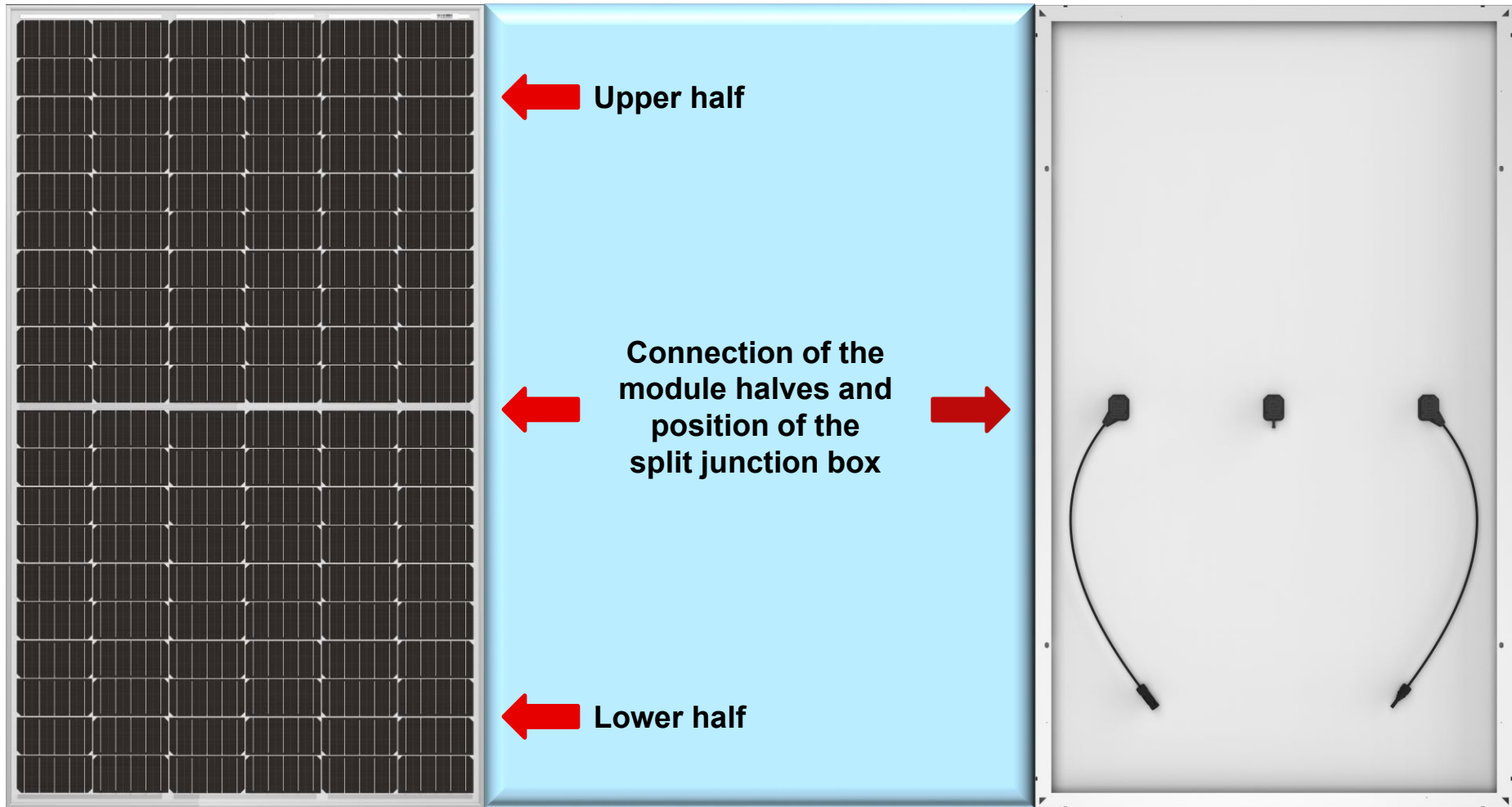
- Increasing module efficiency/higher watt classes and larger cells result in higher currents also within the module itself
- Resistive losses lead to heating and power loss
- Half-cut cells: 75% lower losses within cell interconnects

# From Full Cells to Half-Cut Cells



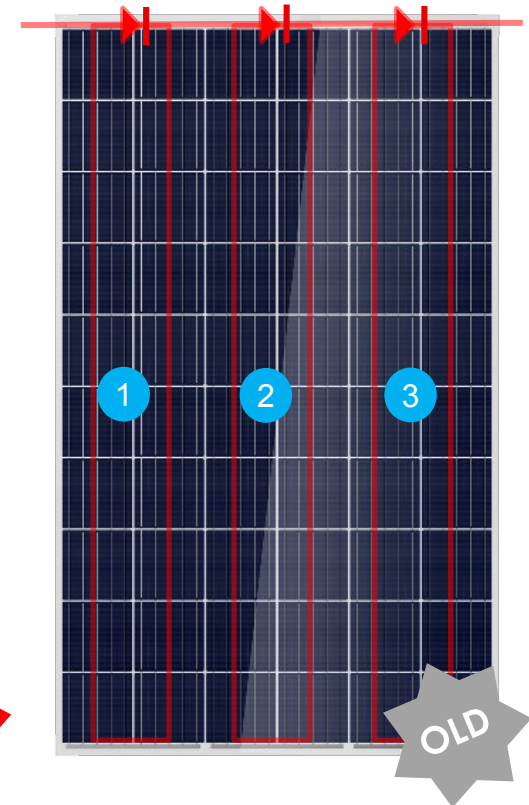
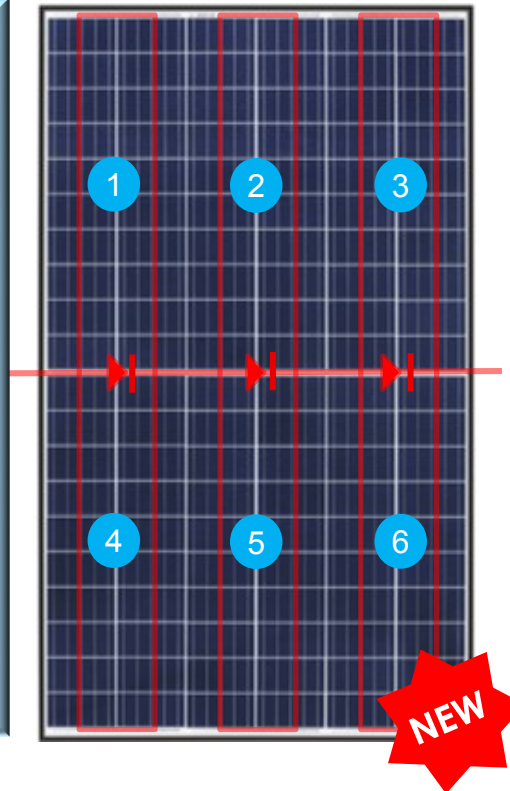
- **Half-cut cells clearly change the visual appearance of the module and require a new module design**
- **Half-cut cell modules consist of 2 halves connected in parallel, hence the current is split in 2 paths within the module**
- **Electrical parameters are identical to full-cell modules, thus no changes for the system design needed**

# Design half-cut cell modules



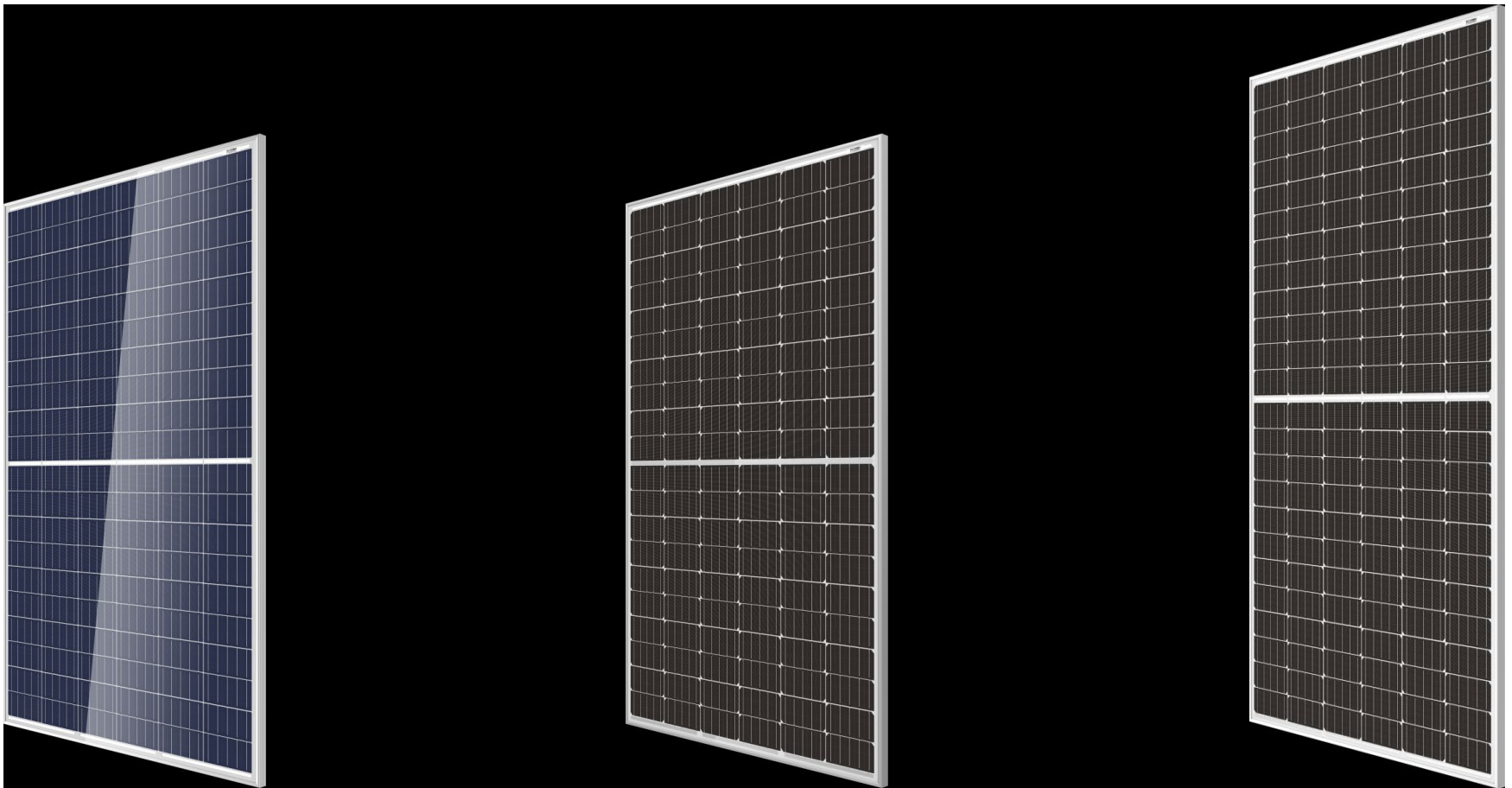
# Design half-cut cell modules

- 6 internal cell strings with 20 half-cut cells each
- Respectively 1 cell string of the upper and lower half are connected to one bypass diode
- The split junction box transfers less heat to the cells lying underneath
- Higher yields in specific shading situations



# Product portfolio with half-cut cells

SPLITMAX



- Poly (PERC); Mono p-type (PERC); Mono n-type (PERT); bi-facial (???)
- 120 cells; 144 cells; glass/backsheet; dual glass; framed; without frame
- Full black mono half-cut cell module

# Half-cut cell modules – advantage in shading conditions

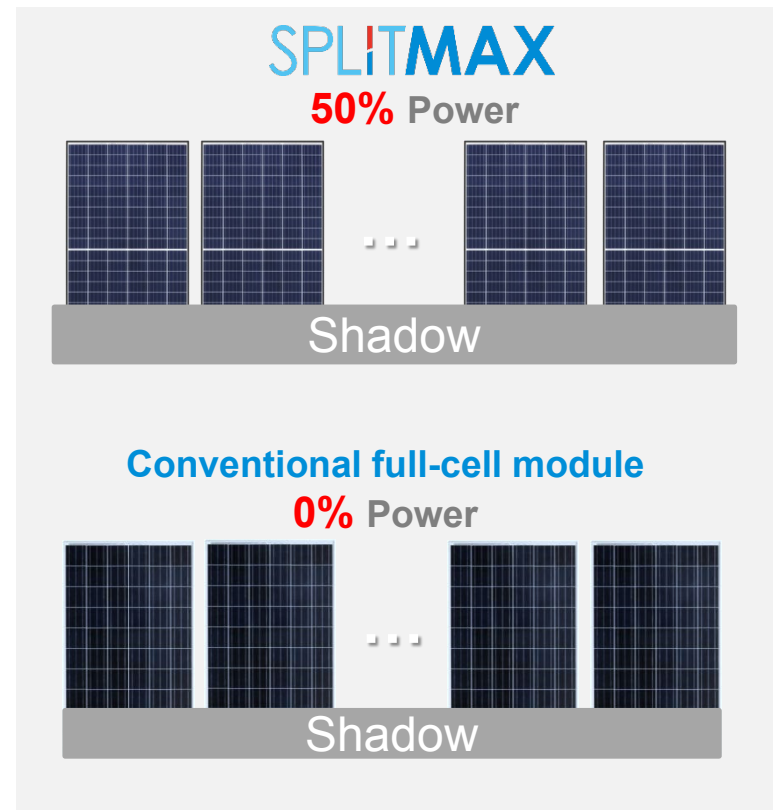


# Shading advantage half-cut cell module

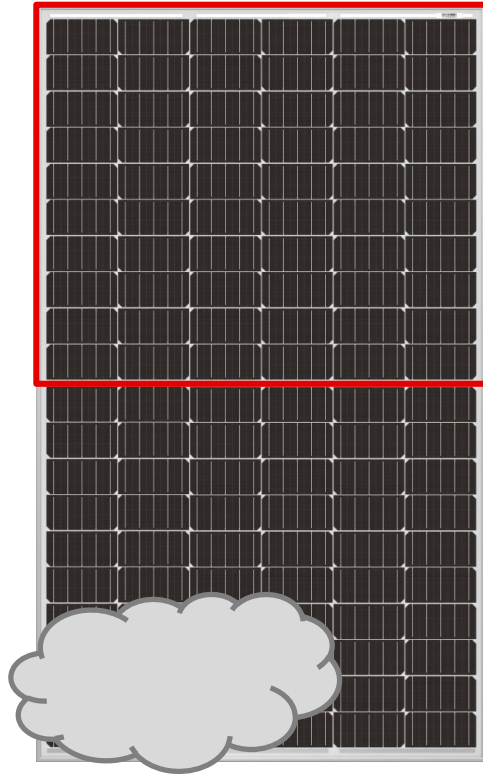
- If the modules are installed in portrait mode, the half-cut cell module can achieve up to 50% more energy yield



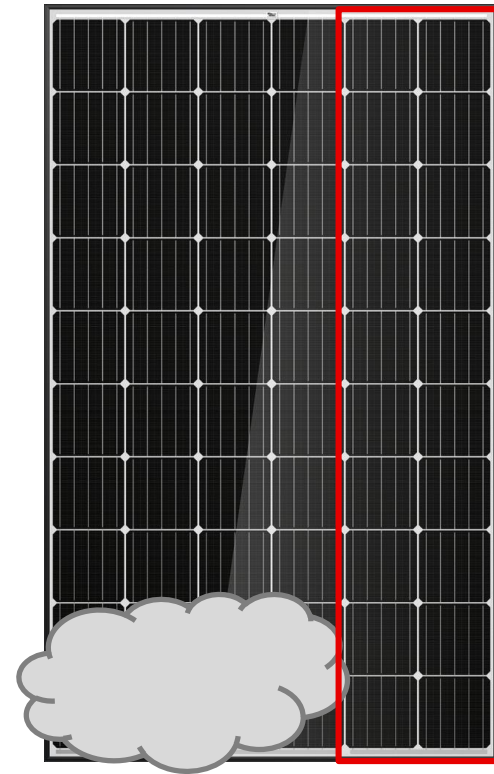
*Example of a typical shading situation (modules installed in portrait mode)*



# Shading advantage half-cut cell module



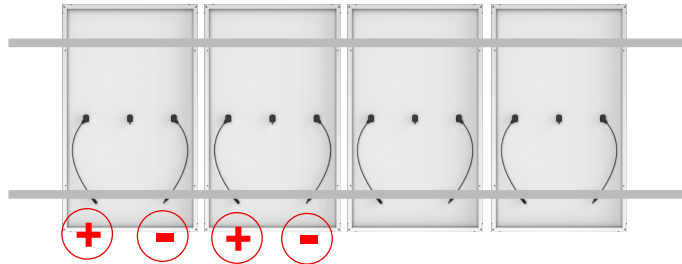
**50% Power**



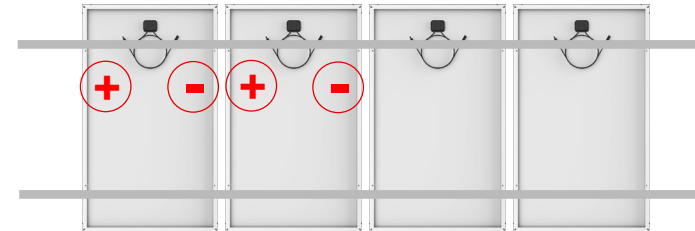
**33% Power**

# Installation of half-cut cell modules

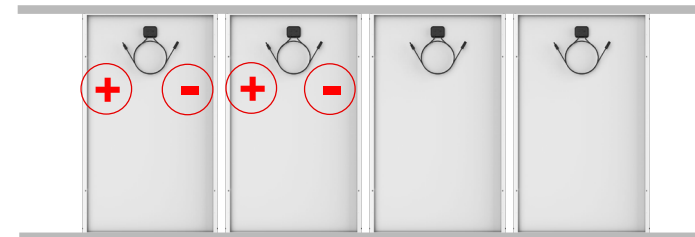
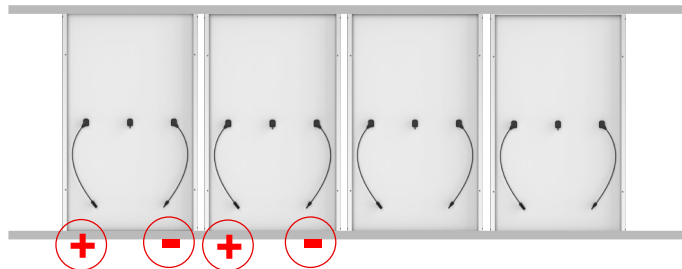
## Half-cut cell



## Full Cell

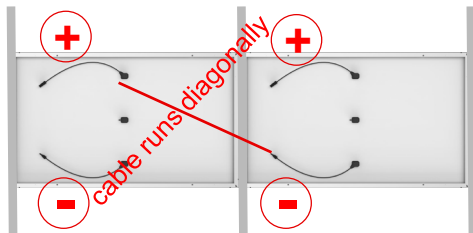


- **Portrait mounting: For half-cut cell modules, fixing cables and connectors to the rails requires an alternative approach during installation**

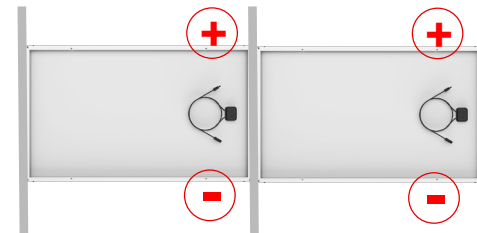


Roof-parallel mounting or rack-mounted East-West oriented flat roofs require new ideas to do the module layout on the mounting structure

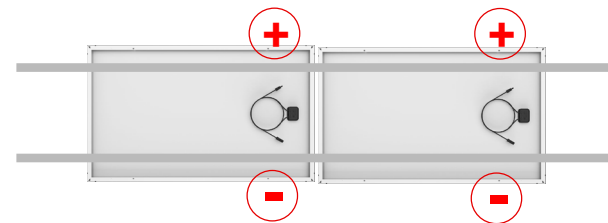
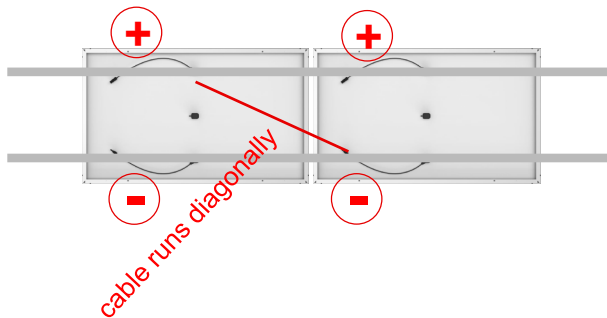
## Half-cut cell



## Full Cell



- Landscape mounting: Four half-cut cell modules, fixing cables and connectors to the rails requires an alternative approach during installation



THANK YOU

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