



Advanced connection solutions For solar PV plants

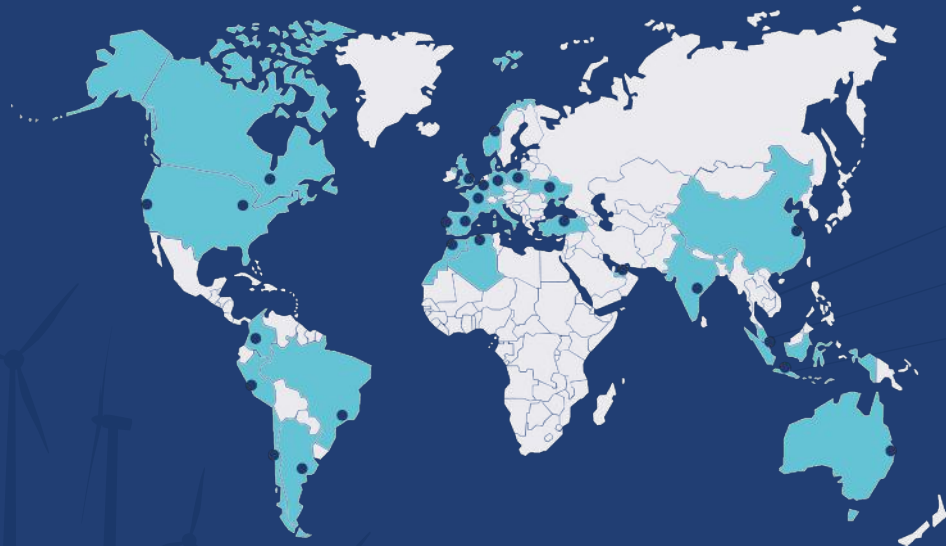


About us

sicame
GROUP

Sicame Group is one of the key players in the electrical equipment business worldwide. It has been able to adapt and develop to support the continuous evolution of electricity infrastructure in France and around the world, and become the largest independent entity in its sector.

A true player in the energy transition, it offers its customers new products and services to improve energy efficiency, deal with environmental risks and support the development of electric vehicle and solar power plant markets.



5 continents

26 countries

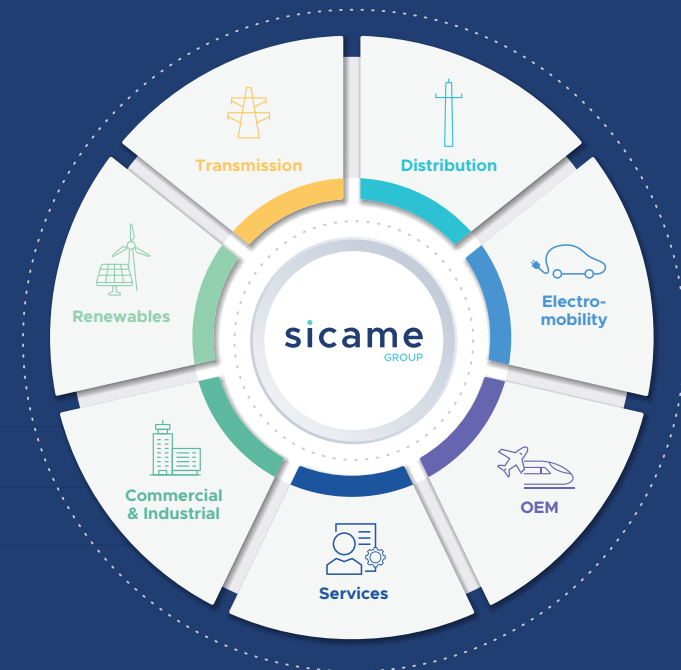
50 companies around the world

Products distributed in **157** countries

+65
years of worldwide
success


458 M€
2021 turnover

3,600
employees




Our fields of activity

Sicame Group is specialized in **products and services** related to the transmission and distribution of **electrical energy** as well as safety equipment and industrial applications.

An aerial photograph of a vast solar farm installed on a steep, forested mountain slope. The solar panels are arranged in neat, curved rows that follow the contours of the hill. In the background, a range of blue mountains stretches across the horizon under a sky with scattered white clouds. A decorative graphic of a grid of white dots is positioned in the upper right quadrant of the image.

Today Sicame Group is gathering all its know-how and 65 years of experience in **one unique and innovative solution for solar farms connection using suspended DC Bus cable architecture...**

A solid green circle is located to the left of the second text block.

With the collaborative work of our R&D teams, **Sicame Group offers a global solution from the wiring of photovoltaic panels to the grid connection.**

In addition to offering excellent value for money with superior quality, our solution will allow to make significant savings on every construction site design from 1MWp to unlimited GWp.



An innovative approach to improve productivity and efficiency

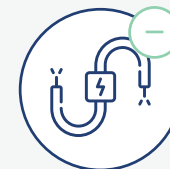
- No trenching
- Easy to install
- Visual control
- Safe solution
- Energy savings
- Higher productivity
- Cost savings



Civil work



Losses



Cables



Improved LCOE



Time saving

- Less civil work
- No more cable stripping nor combiner box use



Cost saving

- Less cable length
- Less operators needed and with lower skills
- Suspended cable system : quicker & easier to install



Losing saving

- Minimize network losses
- Larger cable section
- Reduced contact resistance

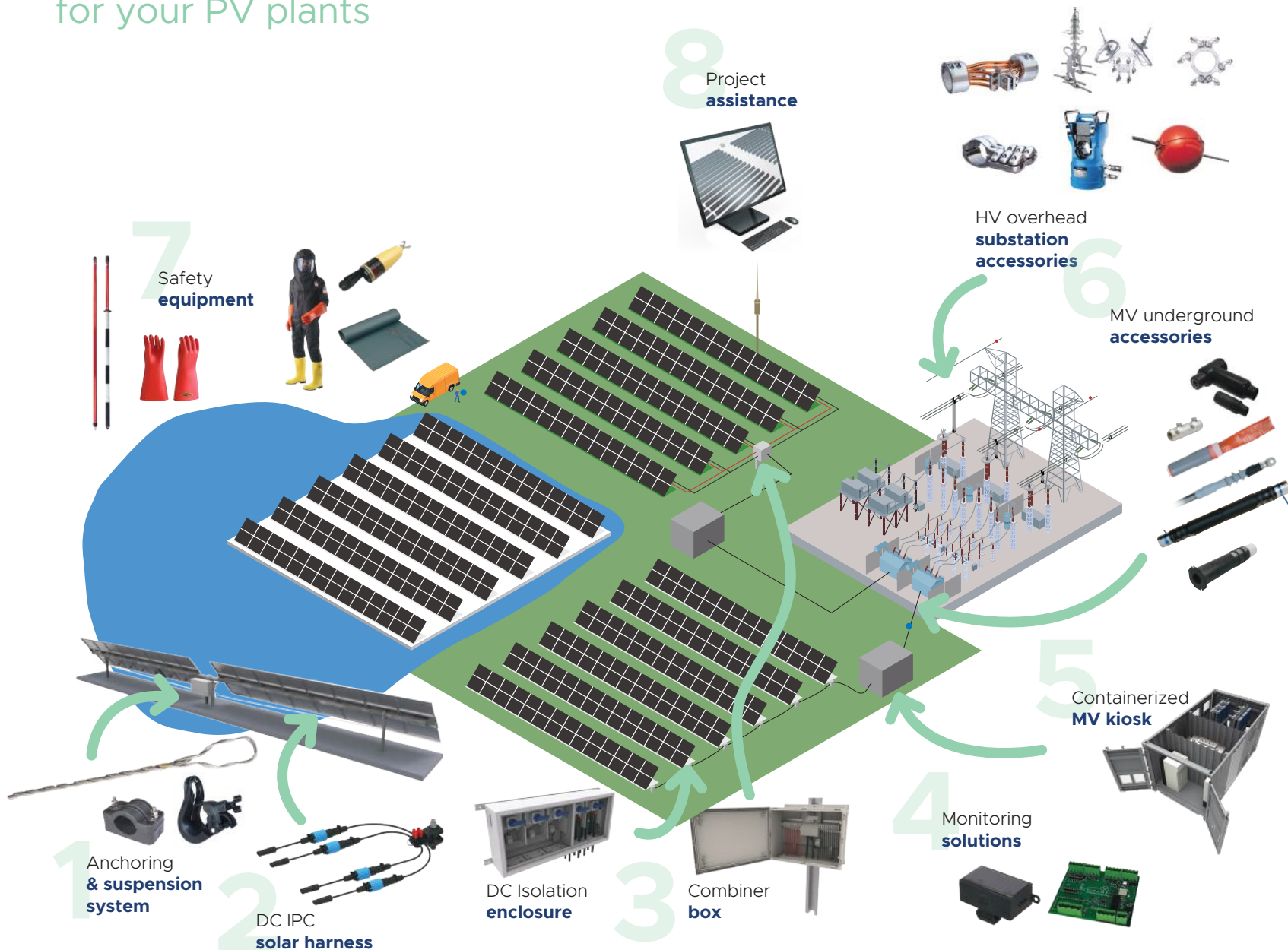


Reliability

- Sicame proven IPC technology
- Optimized fuse ventilation

Sicame solar solutions

A complete connection solution
for your PV plants



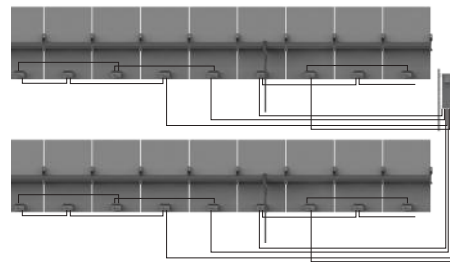
Sicame solar support

In addition to bringing you a complete and innovative product offering for DC bus connection, Sicame provides expert assistance in your electrical design construction.

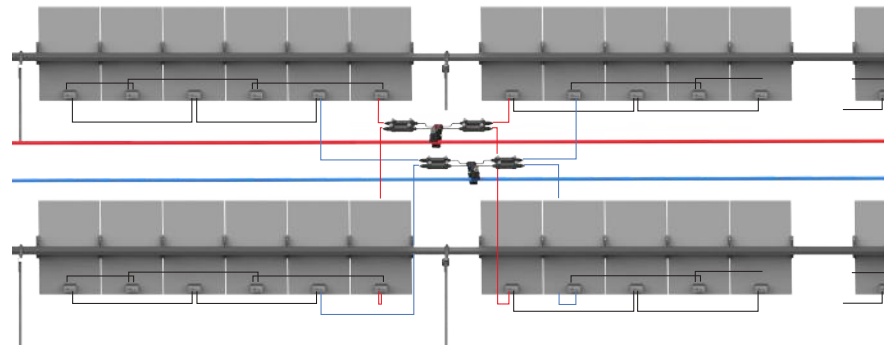
Our dedicated team is at your disposal to assist you in the development of all stages of your project, from design to implementation of your electrical connection.

We have developed an in-house configurator to offer you a customized study of your project to help you assess costs & benefits and select optimized solutions. We will also guide you for on-site installation deployment of your solar farms.

- Calculation of cable lengths
- Calculation of technical losses
- Calculation of complete bill of materials
- Evaluation implementation and product costs - from DC routing to inverter



► Traditional string cabling layout



► Sicame harness cabling and IPC module layout

Cabling savings

with Sicame IPC system
versus string cabling

-34%
cabling
length

A complete DC connection solution for your solar plants

1 Anchoring & suspension accessories

- Sicame best sellers
- Cost saving
- Easy and fast to install
- Minimal tooling
- No trenching
- No specific skills required
- UV stabilized

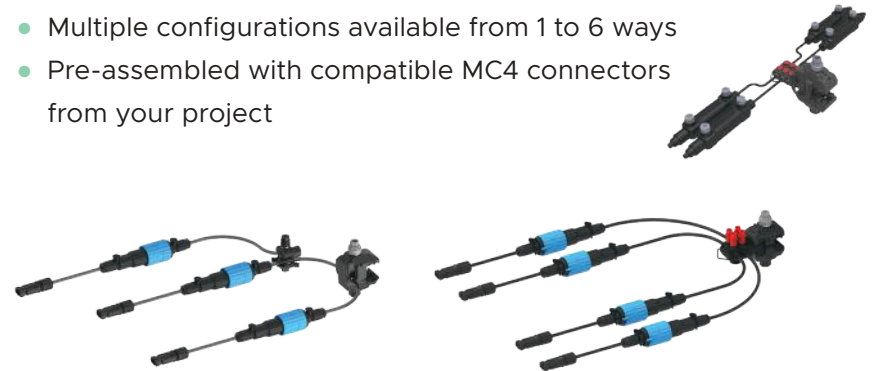
- Live line work contact
- High mechanical and climatic resistance
- Parallel separation of + and - DC Bus polarity
- Suitable from 16mm² to 500mm² conductor range
- Modular design system



2 DC IPC solar harness

- Sicame IPC technology
- Reliability
- Easy to install
- Minimal tooling
- Less labor time
- Less cabling time
- No more combiner box
- Upon request consultation

- String leads from 4-16mm²
- Bus cabling from 16-500mm², double insulated cable, copper or aluminum, stranded or flexible conductor
- Shear head bolt – predetermined torque for reliable & repeatable connection
- 1500 VDC rated system
- Inline fuse rating from 15-60A
- Dielectric testing to 6.5kV – 300mm underwater
- Multiple configurations available from 1 to 6 ways
- Pre-assembled with compatible MC4 connectors from your project



3 DC isolation enclosure

- Customizable according to project requirements
- Strong mechanical resistance
- UV and corrosion resistance
- Watertightness

- Strong mechanical shock resistance – IK10
- IP54 or IP66 protection degree
- High resistance to heat, fire and abnormal heat
- High dielectric strength
- Light weight
- 2 pole pad lockable load break switches
- 2 pole surge arresters
- 1500 VDC cabling



4 String & DCIB monitoring

- Smart sensors to assess strings & DCIB activity and fault detection
- Easy to install, no specific tooling
- Maintenance free
- Wireless standardized communication protocol
- Alert configuration & reporting
- Retrofit compatible

String monitor SMM30:

- Power supplied by solar cell,
- Current monitoring
- Available for 2 or 3 simultaneous strings monitoring



DCIB monitor DCIBMM:

- Voltage and temperature measurement, switch and surge arrester status monitoring



5 Containerized MV kiosk

- Customizable according to project requirements
- Integrated Cell : Inverter, Transformer & Switchgear
- Aeration and ventilation system
- Excellent thermal characteristics

- 60mm thick Seifel insulating panels in a 20' or 40' maritime container
- Complete thermal design and modelization
- Ventilation: natural, mechanical, fan, air conditioning
- Integration of equipment (inserts for battery chargers, inverter), battery rack, battery
- Separation partition (between batteries, generator set)
- Possibility of a double doors container
- Indoor / outdoor lighting
- Cable trays
- Grounding
- Pre-wiring possible



Our complementary offer

String combiner

enclosure



- Customizable according to project requirements
- Watertightness
- Strong mechanical resistance
- UV and corrosion resistance

- Strong mechanical shock resistance – IK10
- IP54 or IP66 protection degree
- High resistance to heat, fire and abnormal heat
- High dielectric strength
- Light weight
- Fused inputs according on project requirement
- 2 pole pad lockable load break switches
- 2 pole surge arresters
- 1500 VDC cabling
- Monitoring in option



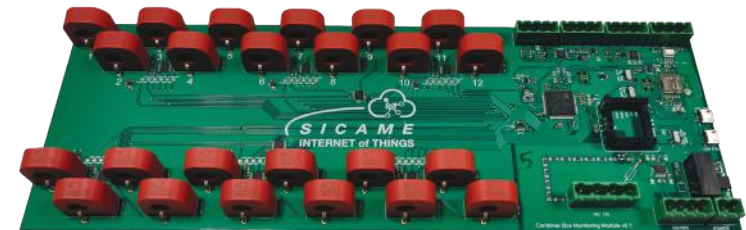
Combiner box

monitoring module - CBMM



- Smart sensors to assess combiner box activity and fault detection
- Easy to install, no specific tooling
- Wireless standardized communication protocol
- Alert configuration & reporting
- Retrofit compatible

- Voltage and temperature measurement, switch and surge arrester status monitoring
- Up to 24 DC inputs
- Current sensor from 20-45A



HV overhead substation & MV underground accessories

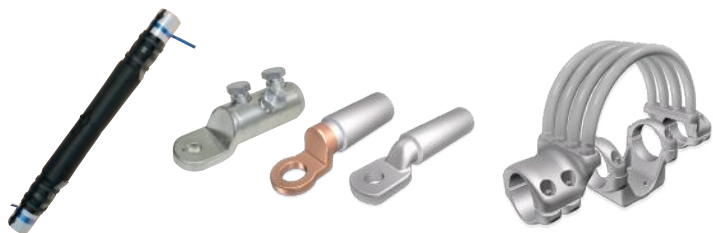
to distribution network



- Cold shrink technology
- Easiest and quickest assembly
- Extremely reliable
- Product customization for individualized needs
- Limits misassembling risks

Complete ranges of accessories to reach the regular energy distribution network:

- Substation accessories up to 1200 kV
- MV underground cold shrink accessories (joints, terminations, separable connectors, etc...)



Safety equipment

Complete range of comprehensive electrical PPE and accessories to ensure safe installation & maintenance on PV plants.





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info@sicame-solar-solutions.com

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