

BROCHURE

# Power switching & monitoring solutions for PV & ESS applications



When **energy** matters



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# We're your **technological partner** for switching and monitoring solutions in energy storage and PV systems

For over 100 years, we've delivered the most innovative solutions for your precise requirements. This wealth of expertise means that we can ensure your power availability and energy performance, delivering sustainable efficiencies for your business.

## Expertise in DC

We have over 100 years of experience with proven technologies in power switching and monitoring which we are proud to share with our partners:

- a complete service from concept development and design through to final product assembly,
- in-house laboratory and testing facilities that are independently accredited,
- collaborative support for our customers throughout each stage of every project.

## Cost management

We know that every detail counts, which is why we precisely analyse each feature required within your application.

This means that we are able to define a product that fulfils your exact requirements while also optimising the cost of your equipment.

## Customisation capabilities

As a specialist independent company with global scale, Socomec is able to offer a high degree of flexibility and responsiveness to OEMs by:

- customising products precisely in line with the requirements of the customer and application,
- setting-up a customer-specific supply chain offering.

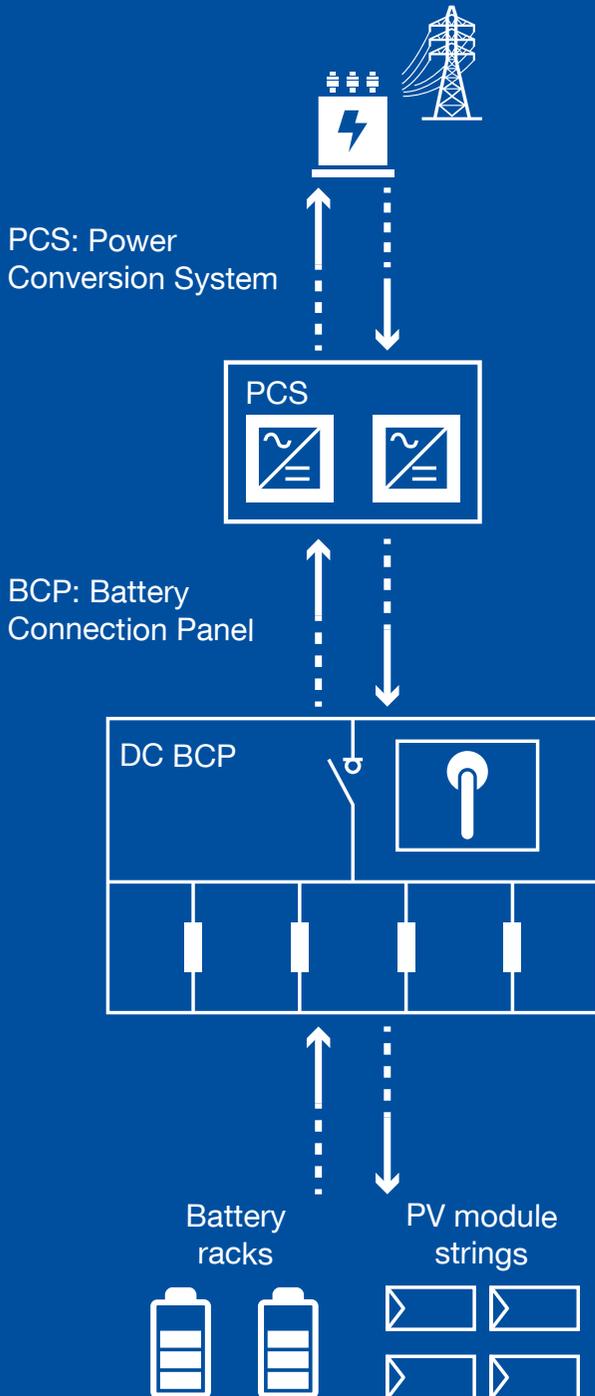
## Accredited in-house testing

The independently accredited in-house Tesla Lab seamlessly navigates otherwise lengthy certification processes. By relieving the customer of the administrative burden of managing and monitoring those processes, it's possible to maintain standards of excellence and provide a made-to-measure service that meets the requirements of international standards.

- power testing for components and electrical equipment, low-voltage switchgear and switchgear assemblies,
- equipment and experience in electrical, mechanical, climatic and functional testing.



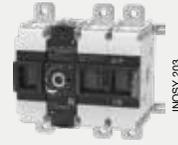
# PV & energy storage applications



SCHEM 140

## DC manual switch disconnecter for high performance

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**INOSYS DC & ESS**  
160 to 1600 A,  
up to 2000 VDC

## DC motorised switch disconnecter

2



**SIRCO MOT DC & ESS**  
from 250 to 3600 A,  
up to 1500 VDC

## DC manual switch disconnecter

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**SIRCO DC & ESS**  
from 100 to 3600 A,  
up to 1500 VDC

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from 160 to 3000 A,  
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from 200 A to 1000 A,  
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**DIRIS Digiware**

# DC manual switch disconnector for high performance

## INOSYS DC & DC ESS

160 to 1600 A, up to 2000 VDC



These switches can be operated manually, using the handle to disconnect all or part of the electrical installation. They ensure on-load opening / closing and safe disconnection of any low voltage electrical circuit up to 2000 VDC. They can also be used for emergency power switching applications.

**new** Specific versions for high short circuit capability available.



### High performance in a compact frame

- Patented technology that provides a breaking capacity of 750 VDC per pole, providing 1500 VDC in just 2 poles.
- For higher voltage applications, a 2000 VDC range is also available in 3 or 4 pole configurations.



### Safe & reliable operation

- Direct position indication on the bar and visible contact with containment of the electrical arc.
- The opening and closing of the switch is fully independent of the operating speed, ensuring safe operation under all conditions.
- High temperature withstand: no derating up to 55 °C, functional from -40 to +70 °C.



### Designed for harsh environments

- Vibration testing (from 13.2 to 100 Hz at 0.7 g).
- Shock testing (15 g during three cycles).
- Humid temperature testing (2 cycles, 55°C with 95% humidity level).
- Salt mist testing (3 cycles with humidity storage, 40°C, 93% humidity after each cycle).

### Innovation

The market's **first true 2 pole 1500 VDC and 3 pole 2000 VDC**. This range has an optimum arc containment and significant power loss reduction, all within a compact device.

IEC 60947-3 - 1500VDC - DC-PV1/2 & DC-21B													
160 A	250 A	315 A	400 A	500 A	630 A	400 A	500 A	630 A	800 A	1000 A	1250 A	1400 A	1600 A
F2			F3			2 x F3			2 // F3				
86P0 2017	86P0 2026	86P0 2032	86P0 2041	86P0 2051	86P0 2064								
86P1 1017	86P1 1026	86P1 1032	86P1 1041	86P1 1051	86P1 1064	86P2 2041	86P2 2051	86P2 2064	86P2 2081	86P2 2100	86P2 2125	86P2 2140	86P2 2160
									86E2 2081	86E2 2100	86E2 2125	86E2 2140	86E2 2160

UL98 - 1500VDC											
100 A	200 A	250 A	400 A	500 A	600 A	400 A	500 A	600 A	800 A	1000 A	1200 A
F2			F3			2 x F3			2 // F3		
87P0 2011	87P0 2021	87P0 2026	87P0 2041	87P0 2051	87P0 2061						
87P1 1011	87P1 1021	87P1 1026	87P1 1041	87P1 1051	87P1 1061	87P2 2042	87P2 2051	87P2 2061	87P2 2081	87P2 2100	87P2 2120
									87E2 2081	87E2 2100	87E2 2120

IEC Extrapolated IEC 60947-3 - 2000VDC - DC-21B					
400 A	500 A	630 A	400 A	500 A	630 A
F2			F3		
88P1 2041	88P1 2051	88P1 2064	88P2 2041	88P2 2051	88P2 2064

# 2 DC motorised switch disconnecter

## SIRCO MOT DC & DC ESS

from 250 to 3600 A, up to 1500 VDC



SIRCO MOT DC and DC ESS are remotely operated multipolar load break switches. They make and break under load conditions and provide safety isolation for any low voltage circuit dedicated to DC applications with high short circuit capabilities up to 1500 VDC.



### Application tested design

- **Designed and tested for several DC applications**, with proven performance in the harshest of environments. The arc extinguishing system provides safe disconnection, rapid arc extinguishing and current Interruption.
- **Tested against high short circuit systems** with and without fuse protection to ensure complete system protection above 250 kA.
- **Proven against severe environmental factors including:** Annex Q level C according to IEC (salt spray tested, high temperature and altitude, humidity cycle tested).



### Reduced total cost of ownership

Developed with cost savings in mind for the user, the product features improvements which ensure lower total cost of ownership:

- flexible wiring configurations,
- multiple circuit design,
- 1 design for both IEC & UL products,
- compact design with reduced footprint and weight.

### Innovation

The market's **first true motorised 2 pole 1500 VDC** with optimum arc containment and significant power loss reduction, all within a compact device!

IEC 60947-3 - 1500VDC - DC-PV1/2 & DC-21B								
Motorised	250 A	400 A	630 A	1000 A	1600 A	2500 A	3200 A	3600 A
	19PV3026	19PV 3041	19PV 4064	19PV 6101	18DC 4250	18DC 4250	18DC 4320	18DC 4360
ON - LOAD DC								
ON - LOAD ESS					18ES 4250	18ES 4250	18ES 4320	18ES 4360
								



UL98

Consult us

Motorised	2000 A	2000 A
	18DC 4200	18ES 4200
ON - LOAD DC		
	ON - LOAD ESS	

# 3 DC manual switch disconnecter

## SIRCO DC & DC ESS

from 100 to 3600 A, up to 1500 VDC



SIRCO DC and DC ESS are manually operated load break switches, with making and breaking capacity under load conditions up to 1500 VDC. These extremely durable switches have been tested and approved for all types of DC application.

**new** Specific versions available for high short circuit capability.



### Reliability and performance

Our range of SIRCO DC load break switches is compliant with UL98B and IEC 60947-3. SIRCO DC switches have been tested to critical currents and high short circuit currents during 50 ms without specific protection.



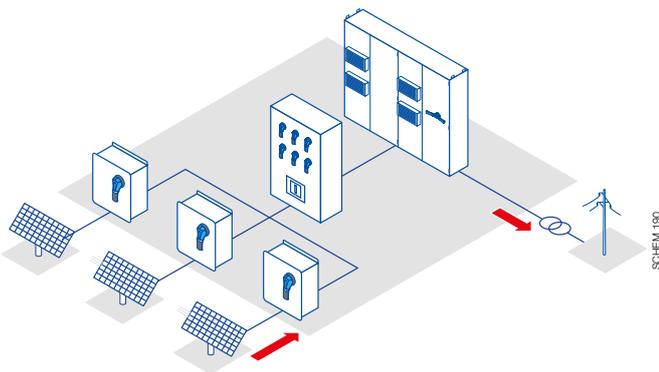
### Innovative design

The SIRCO DC can be directly connected up to four independent DC circuits. The global solution cost is therefore reduced in comparison with the use of four distinct switches.

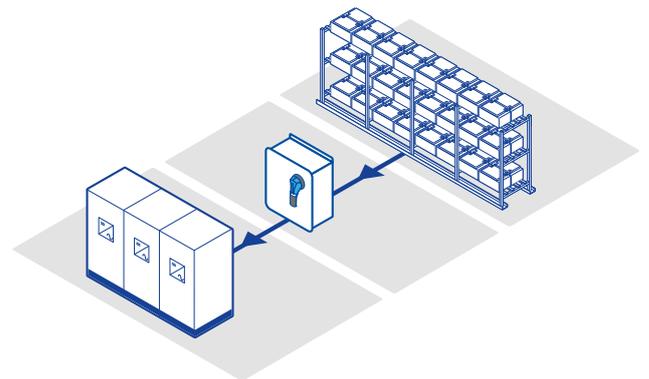


### High quality materials

SIRCO DC is an extremely robust device that's housed in a glass fibre reinforced polyester frame, and therefore able to support a high operating volume.



PV application.



ESS application.

# Fuses for energy storage systems

## FP ESS

from 160 to 3000 A, up to 1500 VDC



FP ESS fuses are specifically for DC networks with high voltage and short circuit levels. They perfectly meet the requirements of energy storage applications and ensure that battery racks and the battery connection panel (BCP) are optimally protected against short circuits and overloads.



### Premium performance for energy storage

FP ESS fuses have been specially developed to meet the requirements of energy storage applications:

- they are sized for installations with potential short circuit currents up to 250 kA and continuous voltages up to 1500 VDC,
- these fuses offer increased reliability, ensuring consistent performance over time. Their silver-based composition protects them from premature ageing, making them perfectly suited to the cyclic operations characteristic of energy storage application.



### A range for a multitude of designs

The FP ESS range, from 160 to 3000 A, offers a variety of mounting options and complies with UL, CSA and IEC standards. With the advice of our experts, manufacturers can find the optimum solution, limiting the energy transmitted to the energy storage system in the event of a fault.



### Certified coordination

The combination of the INOSYS DC ESS, SIRCO DC ESS and SIRCO MOT DC ESS switching offer and FP ESS fuses provides a level of protection and safety that exceeds market standards. Socomec is also able to test this combination in real conditions to go even further in terms of performance and safety.

### Innovation

The first company able to provide a global solution including switching and protection, fully tested and certified.

## A complete Fuse protection line dedicated for ESS applications



Frame 2 from 160 A to 800 A  
Mounting type:  
DIN, Bolted and Flush



Frame 3 from 315 A to 1200 A  
Mounting type:  
DIN, Bolted and Flush



Frame 4 from 630 A to 1800 A  
Mounting type: Flush



Frame 5 from 1250 A to 3000 A  
Mounting type: Flush

## Short circuit simulation software



Dedicated software to determine that the switch can withstand the short circuit current. The customer provides their battery characteristics and fuse choices, and Socomec recommends a switch for their application.

# 5 AC manual switch disconnector

## SIRCO AC

from 200 A to 1000 A, up to 1000 VAC



SIRCO LBS is a manually or remotely operated multipolar load break switch, which makes and breaks under load conditions and provides safe isolation. SIRCO is designed for heavy duty applications up to 1000 VAC - AC 23.



### Simplicity

The standardisation of the SIRCO range and its wide choice of common accessories enable:

- simple mounting,
- reduced stock management and storage costs.



### Easy to install

The outdoor ranges are easy to install thanks to:

- a good centre-to-centre distance (up to 120 mm),
- connection up to 6 x 185 mm<sup>2</sup>,
- connection accessories which facilitate both flat and edgewise connections.



### High quality materials

SIRCO is an extremely robust device that's housed in a glass fibre reinforced polyester frame, and therefore able to support a high operating volume.

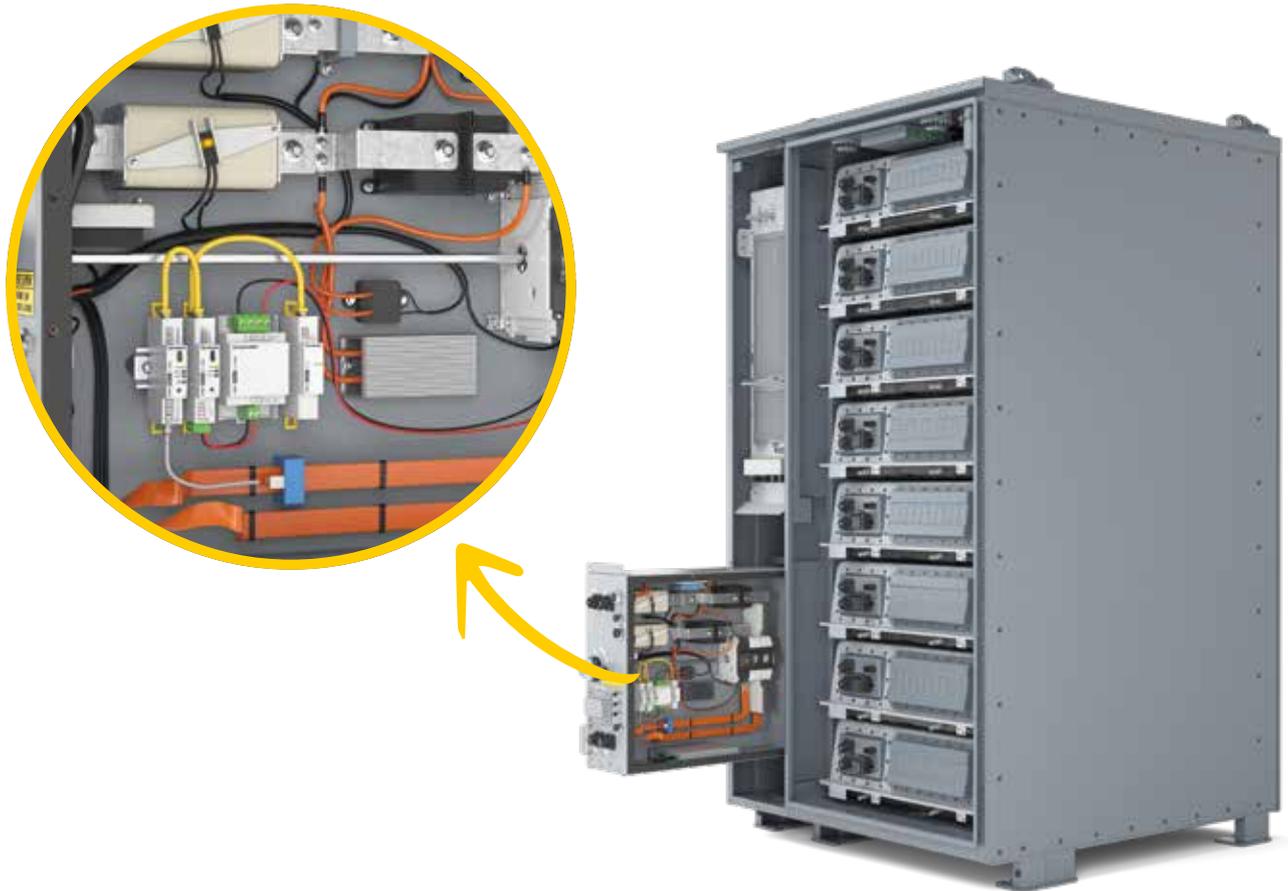


# Multi-circuit Power Monitoring System for both AC and DC systems

## DIRIS Digiware DC & AC

The DIRIS Digiware system is a hub of technological innovations that has revolutionised the world of power monitoring - bringing a high degree of flexibility to installations and making connection and configuration easier than ever before.

A complete Socomec solution, DIRIS Digiware delivers unrivalled performance in terms of accuracy and functionality – whilst being tailored to your system architecture. The most effective solution for monitoring for both AC and DC systems – and that's proven.



### Compact

- Multi-circuit approach thanks to a modular concept made of compact elements.
- One unique interface for both AC and DC circuits.



### Versatile

- High-end monitoring with rich measurements.
- One system enables all your AC and DC circuits to be fully monitored.



### Flexible

100% customisable to your system architecture, including number and type of circuits and voltage level.

## Also available



### AC and DC current sensors

A wide range of solid-core, split-core and flexible current sensors is available to meet any integration requirement from 5 to 6000 A.

Their RJ12 connection to the current acquisition modules and their colour-coded connectors make integration quick and easy, eliminating the potential for wiring errors.

# Socomec: our innovations supporting your energy performance

**1** independent manufacturer

**4,200** employees  
worldwide

**8** % of sales revenue  
dedicated to R&D

**400** experts  
dedicated to service provision

## Your power management expert



POWER  
SWITCHING



POWER  
MONITORING



POWER  
CONVERSION



ENERGY  
STORAGE



EXPERT  
SERVICES

## The specialist for critical applications

- Control, command of LV facilities
- Safety of persons and assets
- Measurement of electrical parameters
- Energy management
- Energy quality
- Energy availability
- Energy storage
- Prevention and repairs
- Measurement and analysis
- Optimisation
- Consultancy, commissioning and training

## A worldwide presence

**12** production sites

- France (x3)
- Italy (x2)
- Tunisia
- India
- China (x2)
- USA (x2)
- Canada

**30** subsidiaries and commercial locations

- Algeria • Australia • Austria • Belgium • China
- Canada • Dubai (United Arab Emirates) • France (x2)
- Germany • India • Indonesia • Italy • Ivory Coast
- Netherlands • Poland • Portugal • Romania • Serbia
- Singapore • Slovenia • South Africa • Spain • Sweden
- Switzerland • Thailand • Tunisia • Turkey • UK • USA

**80** countries

where our brand is distributed

### HEAD OFFICE

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