OPTIM SVGm

HYBRID VAR COMPENSATOR




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Contents

Precise Compensation with No Penalties	5
Why use combined compensation systems?	5
OPTIM SVGm Two Technologies in Just One Device	6
Accurate Compensation, Cost-Efficient	7
Full Compensation in a Single Device	8
Start It Up in Just 3 Steps	11
Communicate Hassle-Free	12
Applications	13
Technical Specifications	14



The OPTIM SVGm range represents Circutor's latest advancement in reactive energy compensation. By combining capacitor banks with IGBT technology, it delivers accurate, dynamic power factor correction for both inductive and capacitive loads. Suitable for a wide range of applications, OPTIM SVGm helps maintain the desired power factor, reduce reactive energy penalties, and improve installation efficiency with minimal maintenance.

Precise compensation with no penalties

Reactive energy penalties are becoming increasingly restrictive. Electric utilities need to reduce losses on distribution lines, as well as offload power transformers, to avoid overloads and premature ageing. Compensating the reactive energy in your installation helps you optimize the power quality, reduce current flow and enhance energy efficiency.

The penalties for inductive reactive energy are getting stricter, which requires the power factor to be as close to 1 as possible. There may also be penalties for consuming capacitive reactive energy, so you have to make sure that your compensation equipment does not over-compensate, or that it directly compensates for capacitive loads.



Avoid any type of penalty in your invoices

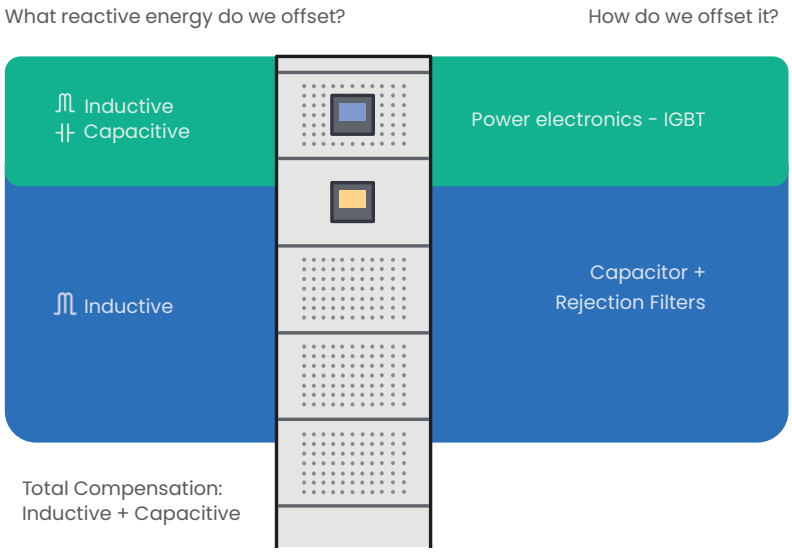
Eliminate the utility company's monthly surcharge for both inductive and capacitive reactive energy.

Optimise your installation

The power factor correction reduces the current flow through the installation's conductors, avoiding any overheating and the triggering of protections. It also optimizes transformer performance and its available power.

Why use combined compensation systems?

The OPTIM SVGm solution is a combined reactive power compensation device designed to compensate for both inductive and reactive energy in the most accurate and economical way.
Its combined technology allows it to compensate for inductive reactive energy by means of capacitors for installations with little load variability, and to use an active compensation system, by means of IGBTs, to finish adjusting the power factor to the desired level, even to compensate for any capacitive reactive energy that may exist in the installation, avoiding any type of penalty.



OPTIM SVGm
Two technologies in just one device

OPTIM SVGm combines into a single reactive energy compensation device all the benefits of traditional capacitor-based compensation, together with the advantages of active compensation via power electronics. This combination of technologies allows us to make the most of both solutions in a single device, ensuring the most effective compensation in the smallest possible space.

Ideal for any type of installation

Inductive Reactive Energy + Capacitive Reactive Energy

Slow Loads + Fast Loads

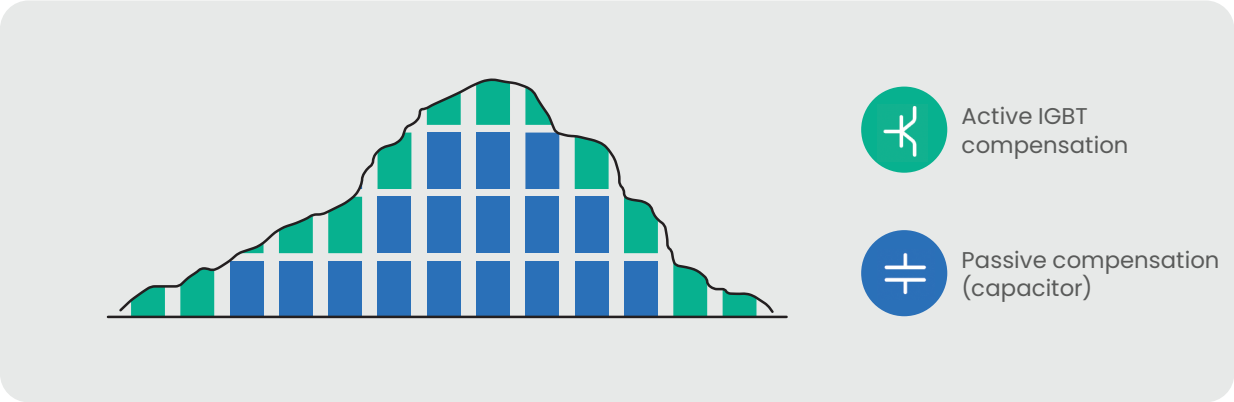
All the possibilities in a single device

Capacitor bank - OPTIM	Static VAR generator - SVGm
Inductive reactive energy compensation	Inductive and capacitive reactive energy compensation
Compensation by steps	Precise compensation
Current measurement in 1 or 3 phases	Three-phase compensation (3 wires)
Built-in power analyzer	Datalogger to measure electrical parameters
Includes rejection reactive devices	Totally immune to harmonics
Easy maintenance and replacement	Minimum maintenance (no passive elements)
Smaller than a capacitor bank	Integrated into the battery enclosure itself
Connection via contact	IGBT switching for fast loads
Optimized size/cost	Built-in active compensation at the best cost

Accurate compensation, cost-efficient

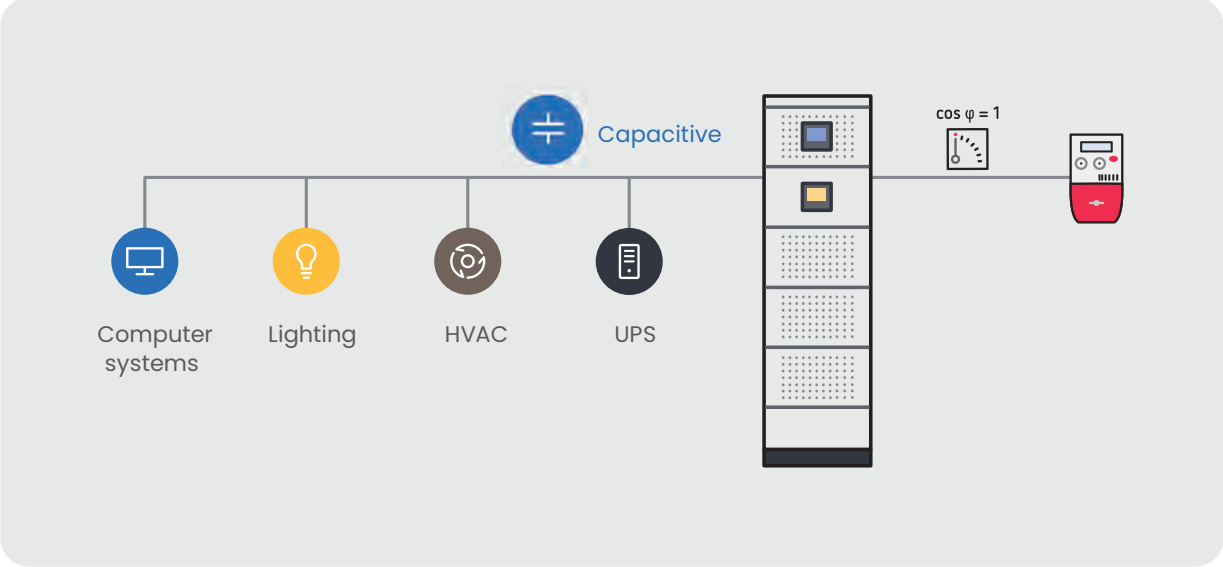
Precise compensation with no penalties

OPTIM SVGm provides the most accurate compensation for the inductive reactive energy in your installation. The solution combines the use of capacitors to offset the inductive reactive energy, depending on instantaneous consumption, with power electronics technology that relies on IGBTs. We use capacitors to compensate for stable loads, and power electronics technology to adjust the compensation of fast loads, to efficiently achieve the target power factor.



Capacitive reactive energy correction

OPTIM SVGm uses IGBT technology to efficiently offset the excess reactive energy generated by capacitive loads, such as computer systems, LED lighting, UPS, etc., adjusting the power factor to avoid any type of penalty now or in the future.

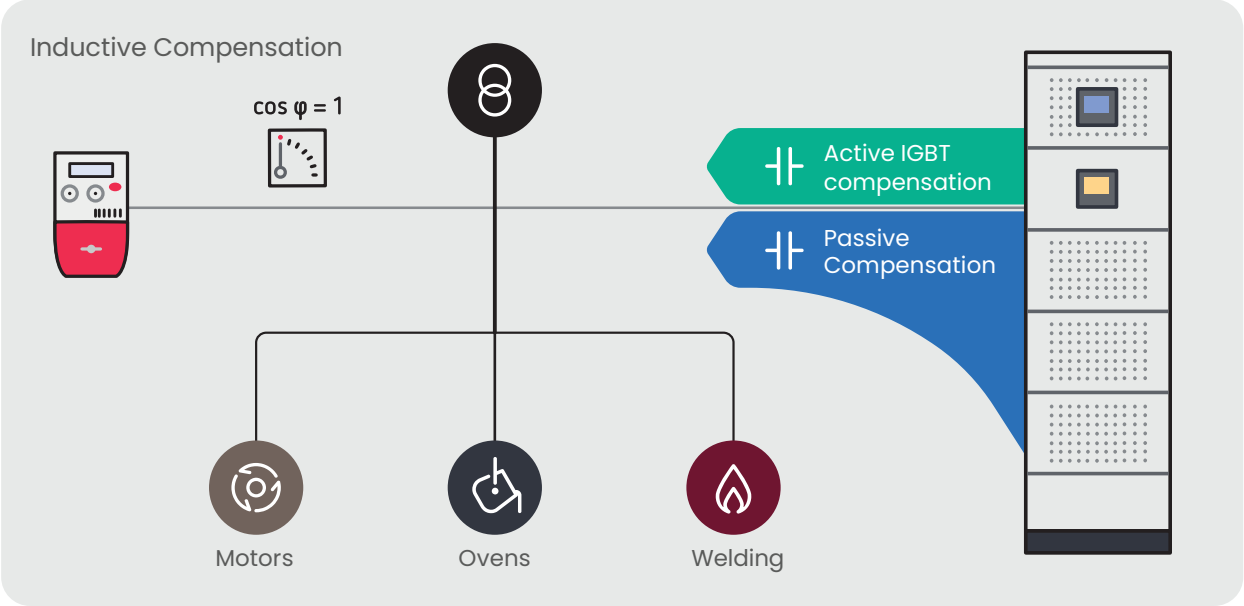


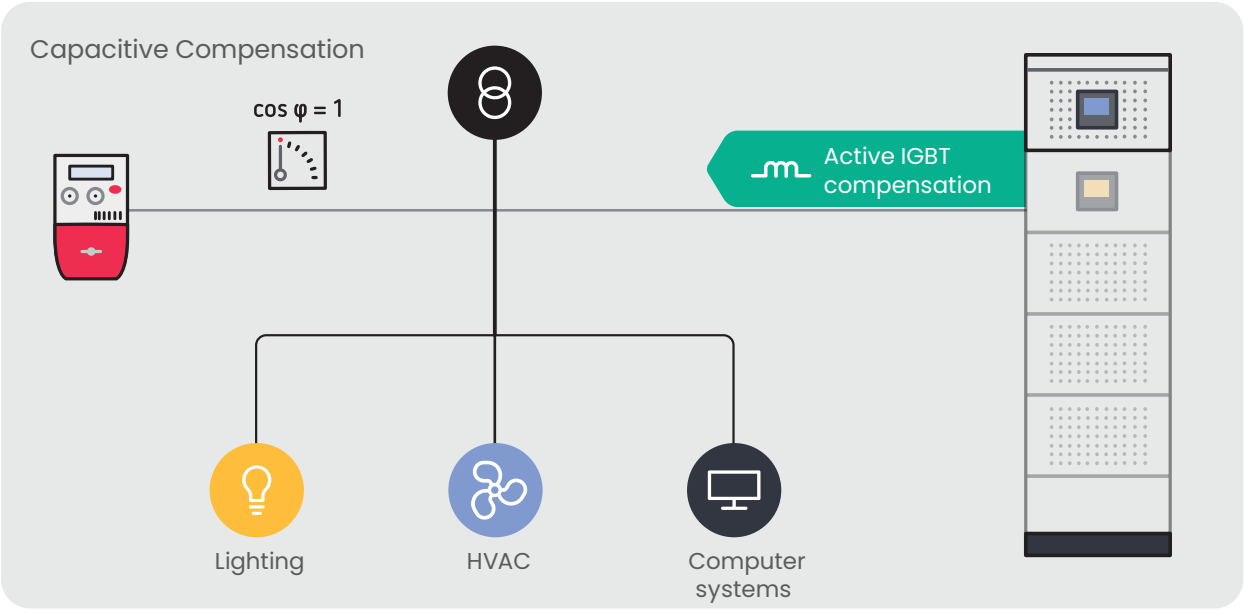
Full compensation in a single device

Avoid any type of penalty

OPTIM SVGm adapts to any type of installation and circumstance to avoid penalties for reactive energy consumption. The device compensates inductive reactive power with capacitors and adjusts power, kvar to kvar, in the most precise way using power electronics.

Avoid penalties for consumption by capacitive loads, especially in periods of low consumption where there may be a fixed consumption of capacitive reactive energy due to the use of a fixed capacitor in the installation's power transformer.





Fine tune the adjustment with combined compensation

Capacitors

Capacitor-based compensation

Compensation of loads with stable consumption

IGBT Technology

Active IGBT compensation

Built-in IGBT technology to quickly offset inductive or capacitive loads



Expand its power at any time

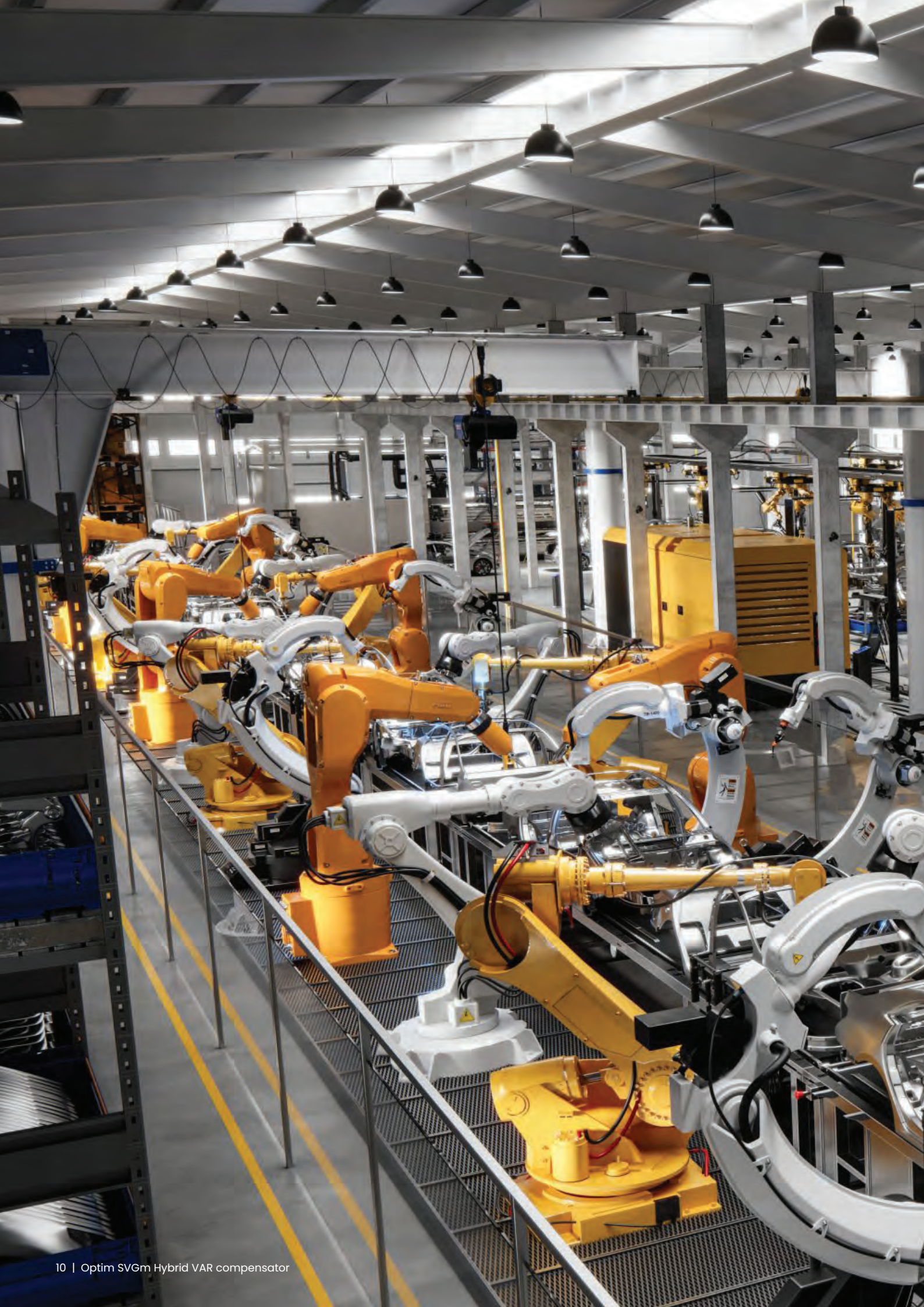
The combined OPTIM SVGm bank can be expanded at any time, with up to an additional 328 kvar@400V by using an adjoining enclosure of the same size, compensating up to 668 kvar. This extension does not require installing three additional current transformers. You will only have to replace existing transformers with others of the required rating, depending on the power of your combined compensation device.

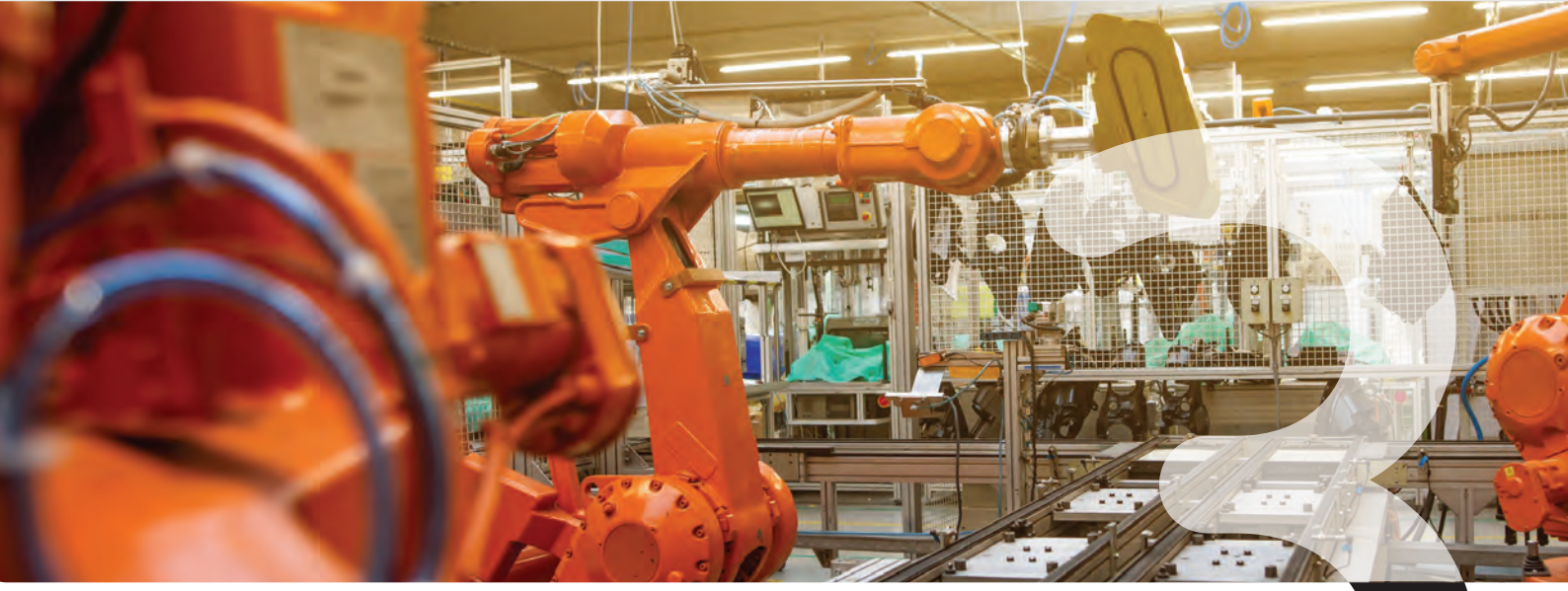
Space is not a problem

OPTIM SVGm takes up much less space than a traditional capacitor bank. Installing and expanding your compensation equipment won't be a problem any longer.

It also incorporates active compensation into its structure, avoiding the installation of additional compensation equipment and minimizing its size.

Up to 340 kvar @ 400 V in a device just 627 mm wide.





Start it up in just 3 steps

Connect

Set up

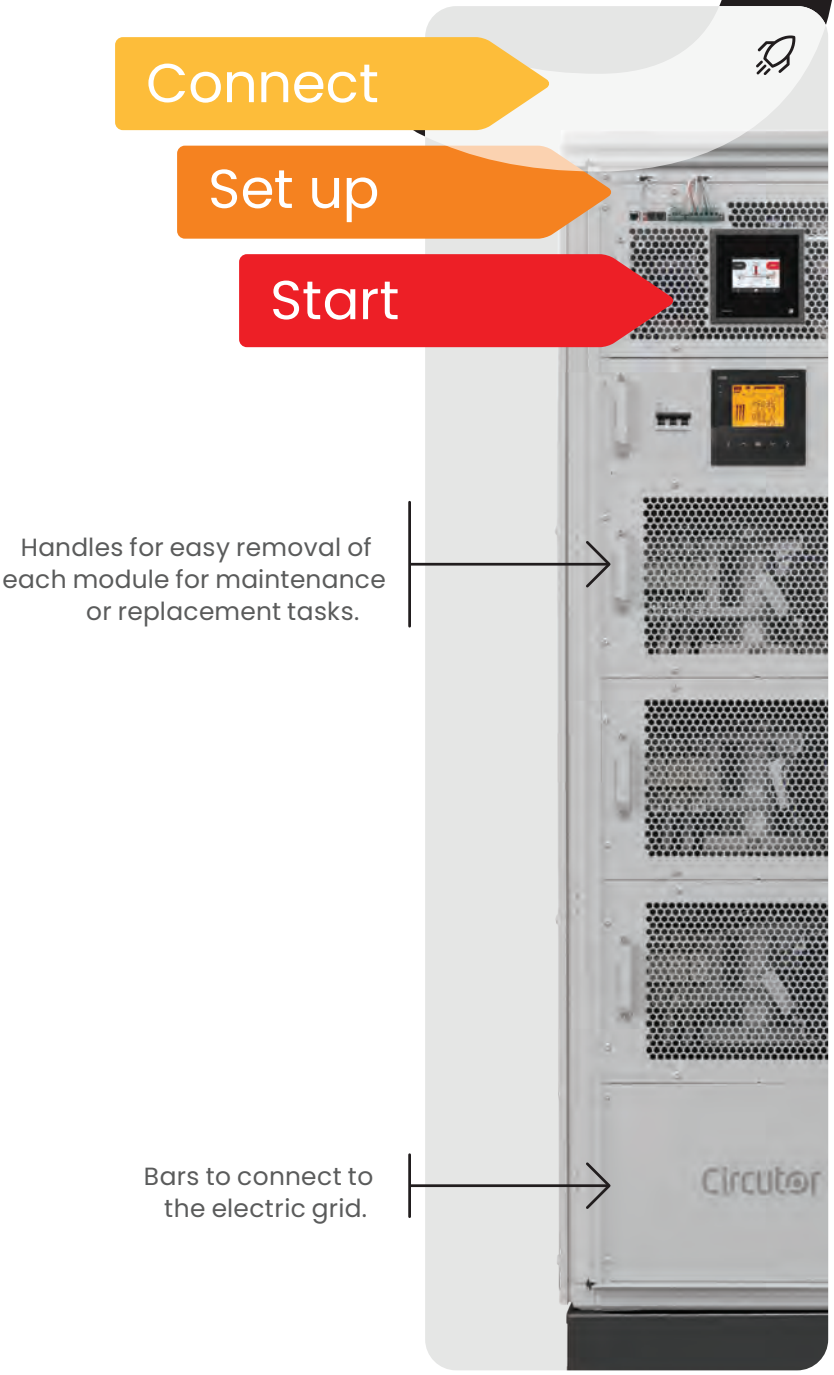
Start

Save time on maintenance

The SVGm power electronics module does not require any mechanical components to operate, which eliminates the need to maintain or replace any of its components. Its modular structure makes it easy to troubleshoot, maintain and replace capacitors and reactive elements quickly, easily and conveniently from the front of the device.

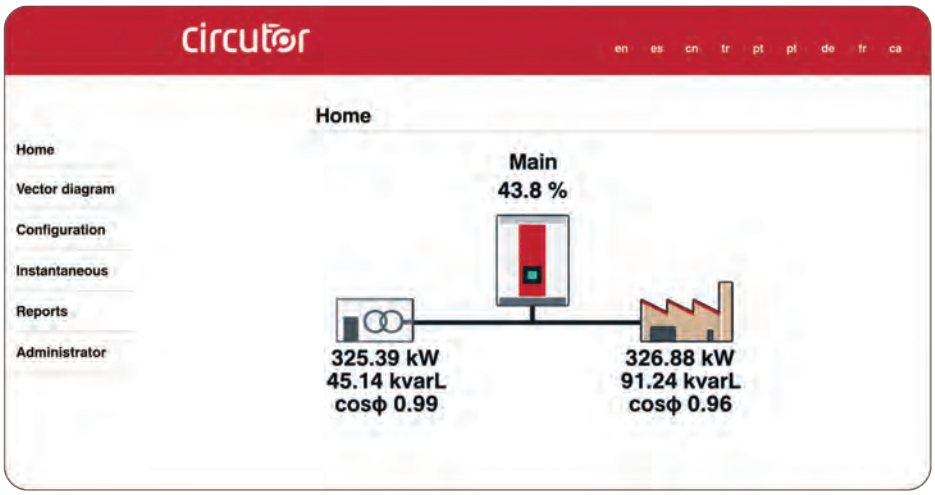
Surprisingly easy to install

OPTIM SVGm has three bars, accessible from the removable front on the device, for connecting the different phases to your installation's electrical network. This feature saves time and complications during installation, and provides easy access to the device when doing maintenance.



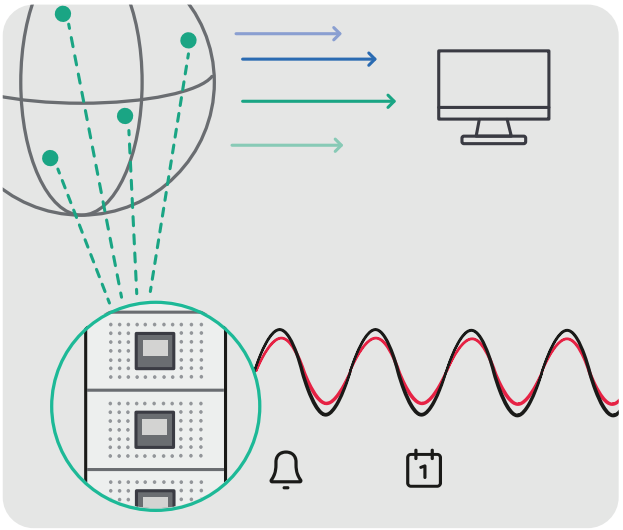
Communicate hassle-free

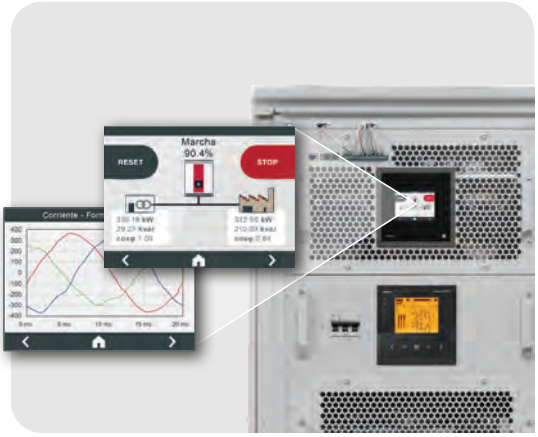
OPTIM SVGm devices have an Ethernet port on the front for easy access to the data. Use any web browser to connect to its built-in web server from your PC, tablet or mobile, and to set up and monitor it hassle-free from your office or anywhere else.



Find out how electrical parameters are trending

The device includes a datalogger for alarm logging and storage of basic electrical parameter readouts. Up to 7 years of data logging stored in its 2 GB memory, ready for download via an integrated web server. It also lets you download log reports in a spreadsheet format.





Interaction with the device via touch screen

The status of the compensation and the electrical parameters can be displayed on the screen, using colour diagrams and graphs for a simplified interpretation and an instantaneous reading of the unit's operating condition.

Applications

The combination of steps using capacitors and precise adjustment thanks to the IGBTs provides optimal management of reactive energy compensation, whether inductive or capacitive.

As a result, OPTIM SVGm adapts easily to changes in load conditions and ensures optimum performance at all times. It is perfectly suited to your installation as it is now, and to any future expansions.



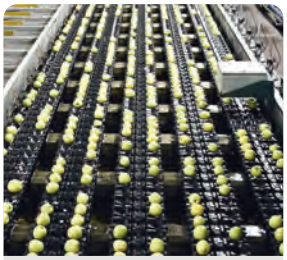
Cement industry



Paper industry



Metallurgical industry



Food and drink



Petrochemical industry



Oil and gas

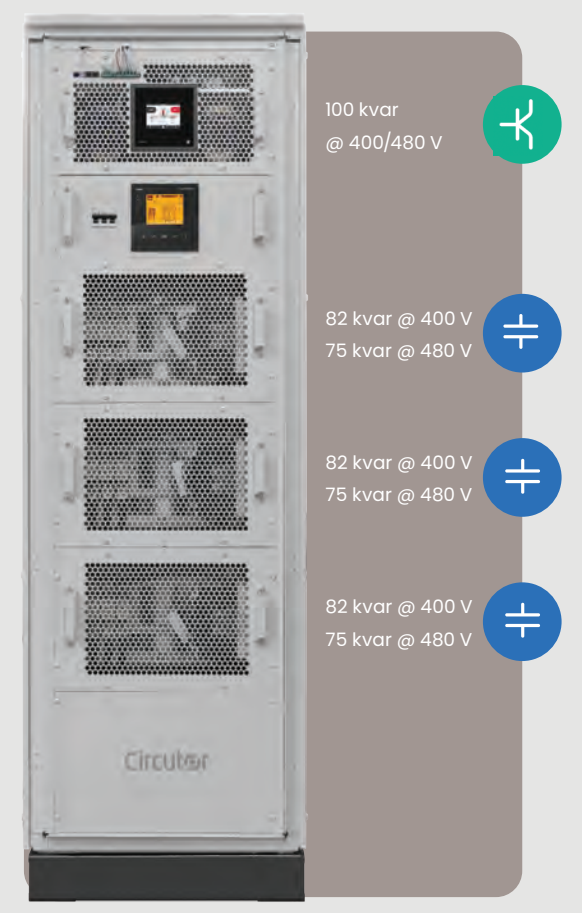


Mining



Automotive industry

Technical specifications



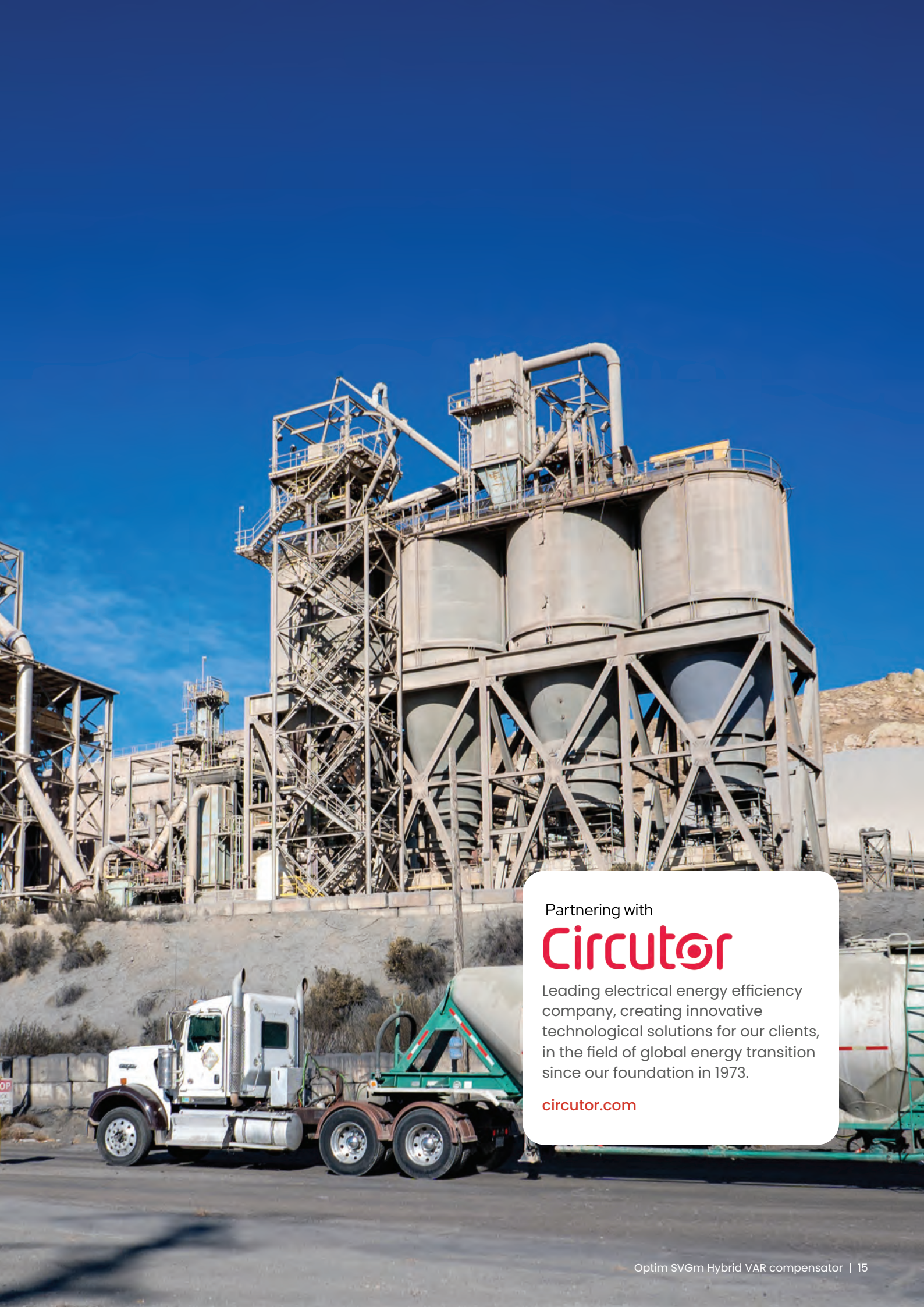
Optimize your reactive energy compensation

- Connection to 3 wires (3x 400 V)
- 100 kvar Active (precise compensation)
- Up to 7x 82 kvar passive @400 V or 7x 75 kvar @480V (capacitors)
- Reactors, contactors and auto-transformer included.

References

Description	Code	Power (kvar at 440 V/50 Hz)	Power (kvar at 400 V/50 Hz)	Make-up of the banks (Contact + Reactor + Capacitor)	SVGm compensation capacity	Dimensions (mm)
OPTIM SVGm-200-440	RG20F1.	200	182	1 x 100 kvar	100 kvar	627x1959x804
OPTIM SVGm-300-440	RG20F3.	300	264	2 x 100 kvar	100 kvar	627x1959x804
OPTIM SVGm-400-440	RG20F5.	400	360	3 x 100 kvar	100 kvar	627x1959x804
OPTIM SVGm-500-440	RG20F7.	500	428	4 x 100 kvar	100 kvar	1254x1959x804
OPTIM SVGm-600-440	RG20F9.	600	510	5 x 100 kvar	100 kvar	1254x1959x804
OPTIM SVGm-700-440	RG20FB.	700	592	6 x 100 kvar	100 kvar	1254x1959x804
OPTIM SVGm-800-440	RG20FD.	800	674	7 x 100 kvar	100 kvar	1254x1959x804

Description	Code	Power (kvar at 460 V/60 Hz)	Power (kvar at 480 V/60 Hz)	Make-up of the banks (Contact + Reactor + Capacitor)	SVGm compensation capacity	Dimensions (mm)
OPTIM SVGm-175-480-60Hz	RG26F1.	169	175	1 X 75 kvar	100 kvar	627x1959x804
OPTIM SVGm-250-480-60Hz	RG26F3.	238	250	2 X 75 kvar	100 kvar	627x1959x804
OPTIM SVGm-325-480-60Hz	RG26F5.	307	325	3 X 75 kvar	100 kvar	627x1959x804
OPTIM SVGm-400-480-60Hz	RG26F7.	376	400	4 X 75 kvar	100 kvar	1254x1959x804
OPTIM SVGm-475-480-60Hz	RG26F9.	445	475	5 X 75 kvar	100 kvar	1254x1959x804
OPTIM SVGm-550-480-60Hz	RG26FB.	514	550	6 X 75 kvar	100 kvar	1254x1959x804
OPTIM SVGm-625-480-60Hz	RG26FD.	583	625	7 X 75 kvar	100 kvar	1254x1959x804



Partnering with

Circutor

Leading electrical energy efficiency company, creating innovative technological solutions for our clients, in the field of global energy transition since our foundation in 1973.

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