

# VarSet

Low Voltage Capacitor Banks



# Engineered for outstanding performance and long-term value

The entire VarSet range offers a unique combination of abilities to give you more convenience, reliability and cost-effectiveness across a broad range of applications. Forward-thinking design and meticulous manufacturing quality means you can count on VarSet capacitor banks to deliver dependable, long-term service

## Simplicity

- Easy installation
  - compact enclosure up to 300 kvar
  - top or bottom cable connections
  - easily accessible gland plates for power cables
  - mounting brackets for easy wall mounting
- Ease-of-use and maintenance
  - automatic programming and commissioning with Varlogic controller
  - simple replacement or retrofit of VarplusCan capacitors
- Straightforward EMS integration
  - Modbus communication protocol (Varlogic NRC12 option) for integration with building management and energy monitoring systems

## Reliability and durability

- Long life performance
  - multi-capacitor architecture
  - step switching with special design contactors
  - over heating protection and alarm for detuned reactors
  - earthing studs welded to the frame and door



## Safety

- > Protection
  - step protection with circuit breaker from 125 to 1150 kvar
  - thermal monitoring device
  - main incomer circuit breaker protection (optional)
  - direct and accidental contact protection
  - main switch rotary handle (optional)
- > Robust envelop
  - IP31 protection for indoor application
  - IP54 protection for dusty, industrial environments (optional)
  - IK10 protection against mechanical shocks
  - high quality welding and coating
- > Tested and certified
  - fully type tested according to IEC 61439-1 & 2, IEC 61921



**ISO  
14000**

quality certified  
manufacturing

Our VarSet offer comes with the assurance that the components inside are manufactured by Schneider Electric, thus assuring high quality.



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VarplusCan capacitors

### VarplusCan: Heavy duty capacitors

VarSet range of equipments are integrated with heavy duty aluminum can capacitors (Varplus Can) that are especially designed and engineered to deliver a long life expectancy with low losses.

Features:

- high life expectancy
- high overload capabilities with good thermal and mechanical properties
- self-healing with discharge resistors
- pressure-sensitive disconnecter on all three phases
- special film resistivity and metallization profile for higher thermal efficiency and enhanced life expectancy.



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TeSys LC1D range of contactors

### LC1-D electromagnetic contactors

Capacitor control is accompanied by a transient state resulting from the capacitor load. This generates a very high overcurrent, equivalent to a short circuit of short duration.

#### Unique technology contactors

The contactors used in our devices are specifically designed for capacitor control. They are fitted with a contact block allowing the current to pass on closing and with damping resistors that limit the current on energisation.

#### Personal safety

The contactors cannot be operated manually. The contactors are fitted with covers to protect them from direct contact.

#### Safety of installations.

Damping resistors are used to reduce transient voltage surges.

#### Long service life

These contactors are a ready-to-use solution that avoids the installation of shock coils. Their service life is far longer than that of conventional solutions.



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Detuned reactors

### Detuned reactors

Detuned Reactors enable the protection of capacitors against harmonic pollution. They are recommended for usage in polluted networks, with choice of three tuning factors: 2.7, 3.8 and 4.2.

They are equipped with thermal protection device for step disconnection.

### Spacial enclosures

- IP31: recommended for indoor usage. Protection against condensation as well as tools and wires (>2.5 mm).
- IP54: recommended for harsh and dusty environments (indoor usage). Protection against ingress of dust and condensation.
- IK10: maximum possible protection against mechanical shocks and can withstand energy of 20 joules.

These degrees of protection are defined by standards IEC 60529 (IP) and IEC 62262 (IK).



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Spacial enclosures



Cabinet with door open

IP door open protects against direct physical contact with voltage for more safety of operating personnel.

IPxxB: ensures protection against live parts that retain voltage even when door is open (protection against access with finger).

### Step circuit breaker

From 125 kvar for low polluted network and from 50 kvar for polluted network, each physical step is protected by a step circuit breaker that ensures that our equipments are highly fault-tolerant, ensuring continuity of service even when one or more capacitors are malfunctioning. The details of the steps are on page 15.



Circuit breakers

### Incomer circuit breaker

Schneider Electric's range of circuit breakers is designed to ensure maximum continuity of service. Our VarSet range of products have the option of being protected with a main incomer circuit breaker; no spare fuses required and overload protection that cannot be achieved with HRC fuses.

While the smaller power ranges (less than 100 kvar), are always protected with circuit breakers of up to 35 kA breaking capacity, our larger power ranges (over 100 kvar) come with an option to integrate circuit breakers of either 35 kA breaking capacity or 65 kA for industrial networks.

Rotary handle is also provided as an option to facilitate the disconnection of circuit breakers, before opening the door. This is an additional protection mechanism to ensure the safety of personnel.



Varlogic NR6

### Varlogic N Power Factor Controller

Our range of Varlogic N series of Power Factor Controllers are simple to program, reliable and intelligent. Varlogic Controllers offer user friendly features such as a large backlit display, intuitive menus, ergonomic layout of buttons, direct display of main measurements and intelligent self set-up.

The Varlogic N controllers constantly measure the reactive power of the installation and control the connection and disconnection of capacitor steps, to obtain the required power factor. The range is composed of:

- NR6: control up to 6 capacitor steps
- NR12: control up to 12 capacitor steps
- NRC12 with Modbus: control up to 12 capacitor steps, with advanced diagnostic functions and integrated **Modbus interface communication module, which enables** Varlogic functions to be connected to the **energy management controller iRIO**. This is the hub on the **On site Energy Management Solution** designed by Schneider Electric to ensure energy savings for a long time.



Varlogic NRC12

### Auxiliary Transformer

Auxiliary units such as contactors, controllers, and fans, operate only on 230 Volts. For installation other than 230 Volts, the voltage for the auxiliaries has to be converted by an auxiliary transformer. In order to simplify the installation process, VarSet equipments can be integrated with an auxiliary transformer (chosen as an option).

### Other Accessories

Accessories such as plinth (for easier installation on uneven surfaces) can be ordered as an option along with the VarSet equipments.