

DVS
Digital Voltage Stabiliser
Electromechanical

SIRIUS

three-phase
60-6000kVA





DVS Digital Voltage Stabiliser

Electromechanical

SIRIUS

three-phase
60-6000kVA

SIRIUS stabilisers are equipped with **columnar voltage regulators** which make possible to achieve high ratings (up to 6000kVA) and a **solid and reliable construction**, so that **any industrial need can be met**. The three-phase SIRIUS line allows for the choice of several input voltage variation percentages within a broad range (from +30% down to -45%).

The SIRIUS type can be used when the **mains phases are asymmetrical** and it is suitable for **supplying unbalanced** three-phase loads, two-phase loads and single-phase loads. The SIRIUS voltage stabilisers perform an **independent regulation on each phase**.

The presence of the **neutral wire** is therefore **required**. The stabiliser can also operate without neutral wire by adding a D/zn isolating transformer or a neutral point reactor).

The stabilisers are **air cooled** (natural convection up to 45°C, assisted by fans when the temperature exceeds said value).

The measuring instrumentation is incorporated in the control panel on the cabinet door and consists of **two multi-task digital line analysers**. Such instruments are able to provide with information regarding the status of the lines upstream and downstream the voltage stabiliser such as phase and linked voltage current, frequency, power factor, active power, apparent power and reactive power.

The **readings are stored** locally by the **control system** and (if the Ethernet connection is established) sent to a server at Ortea HQ, thus providing the Service centre with the necessary information.

The front panel is provided with a user-friendly **LED interface** which allows for a complete monitoring of the unit. LED lights are provided for each phase signalling «power on», reaching of voltage regulation limits and direction of voltage regulation (increase/decrease). **Alarms** for minimum and maximum voltages, maximum current, over-temperature, cabinet overheating and maintenance required are also indicated. The alarm indicators are accompanied by an acoustic alarm.

Monitoring activities can be **run remotely** by installing on a PC (connected to the stabiliser via Ethernet) the **STABIMON software** provided with the unit. It is also possible to communicate with the stabiliser with the **Modbus TCP/IP protocol** (standard communication protocol between electronic industrial equipment) via an Ethernet connection with RJ45 cable.

The control system is able to interface with the **Internet** thanks to its capability to connect with ETHERNET and GPRS protocols. This allows for a remote monitoring of the equipment made by ORTEA at its headquarters, thus **guaranteeing prompt assistance** worldwide.

The control system is also provided with **two USB ports** for downloading the stored data on a memory key and uploading setting parameters if operating modifications in the system are needed. Also, the control firmware can be updated either through the USB port or via the Ethernet connection.

The SIRIUS stabiliser is provided with an **electronic voltage regulator protection system** activates in case of overload on the voltage regulator. In such condition the load supply is not interrupted, but the stabiliser output voltage is automatically set to the lower between the mains voltage and the pre-set output voltage. The **service continuity is guaranteed**, although the voltage is not stabilised. When the overload condition ceases to exist, the stabiliser switches automatically back to regular functioning.

The control logic, performed on the **true RMS voltage**, is based on **two 2-way DSP microprocessor** (one performing the control and the other one managing the measurements). The user can monitor the system and set all the parameters of the stabiliser via a **PC connection**.

The whole system is **supervised** by a third **bodyguard microprocessor** controlling the correct functioning of the other microprocessors.

The output voltage is reset to the minimum value in case of blackout by means of **supercapacitor** banks in order to ensure the correct shutdown.

All SIRIUS stabilisers are provided with Class I and Class II **SPD surge arrestors**.

Remote communication system

The all-in-one control card manages also the **remote communication** to the voltage stabiliser. The card is fitted with a **local display** (showing alarms and setting parameters) and with a keypad used to interact with the card itself. This **remote data monitoring system** enables the user and Ortea Service Centre the chance of monitoring the stabiliser on-line wherever installed by means of the **STABIMON dedicated software**, supplied with each unit. Alternatively, the communication with the stabiliser can be established via the **Modbus TCP/IP protocol**.

Should the Ethernet connection not be available, the remote communication can be performed via an embedded GPRS modem. A common SIM data card purchased locally and inserted in the modem allows for a simple data transmission.

All ORTEA stabilisers are designed and built in compliance with the 2006/95/EEC (Low Voltage) and 2004/108/EEC (Electromagnetic Compatibility) European Directives with regard to the CE marking requirements. ORTEA products are built with suitable quality components and that the manufacturing process is constantly verified in accordance with the Quality Control Plans which the Company applies in compliance with the ISO 9001:2008 Standards. The commitment towards environmental issues and safety at work matters is guaranteed by the certification of the Management System according to the ISO 14001:2004 and OHSAS 18001:2007 Standards.

In order to obtain better performance, the products described in the present document can be altered by the Company at any date and without prior notice. Technical data and descriptions do hold therefore any contractual value.





STABIMON software

STABIMON is the software managing the communication with the voltage stabiliser. The program can be run when the user wishes to communicate with the stabiliser or simply read the collected information. In a single page, the dashboard provides the main information concerning voltage, current, power and alarm status. In the top left-hand side of the page, each phase input voltage, current and cos are shown. In the top right-hand side, the corresponding output parameters are shown.

In the area between the input and output parameters, mains frequency and general information for the stabiliser identification are displayed. Below said data, the communication errors (if any) are listed.

The lower part of the page is used to visualise input and output active, reactive and apparent powers, voltages and temperature measured on the base board and the reproduction of the LED status as available on the stabiliser control panel. The LEDs are red in case of error.

Graphs and statistics relevant to the stabiliser operating status can also be displayed.

Standard features

Voltage stabilisation	independent phase control
Selectable output voltage via display, PC and/or Ethernet	from 210V to 255V (L-N) from 360V to 440V (L-L)
Frequency	50/60Hz $\pm 5\%$
Admitted load variation	Up to 100%
Admitted load imbalance	100%
Cooling	Natural air ventilation (aided with fans over 45°)
Ambient temperature	-25/+45°C
Storage temperature	-25/+60°C
Max relative humidity	95%
Admitted overload	200% 2 min.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP21
Instrumentation	– Input & output digital multimeter with RS485 port – LCD display
Installation	Indoor
Regulator overload protection	Digital control
Communication system	Ethernet / GPRS / USB / MODBUS TCP/IP
Overvoltage protection	– Input class I surge arrestor – Output class II surge arrestor – Soft start through supercapacitors in case of blackout

Optional features

Interrupting devices
Manual bypass line
Total protection kit
Input isolating transformer
Integrated automatic power factor correction system
SPD surge arrestors
EMI/RFI filters
Neutral point reactors
IP54 protection degree for indoor and outdoor



WIDE RANGE



Different standard range of input voltage fluctuation:
symmetrical: **±15%, ±20%, ±25%, ±30%** (other on request)
asymmetrical: **+15%/-25%, +15%/-45%** (other on request)

Output voltage accuracy: **±0.5%**.

TECHNOLOGY



The control logic, performed on the **true RMS value**, is based on two **2-way DSP microprocessor** and supervised by a third **bodyguard microprocessor** with Ortea dedicated firmware.

The unit **parameters** and the output voltage can be **set by using a personal computer** or directly on the **front panel**, thus allowing for dealing directly in the field.
Independent regulation on each phase.

LONG LIFE



Ortea system voltage regulator with **rollers**, no sliding (consuming) parts.
Columnar voltage regulators make possible to achieve **high ratings** (up to 6000kVA) and a solid and reliable construction.

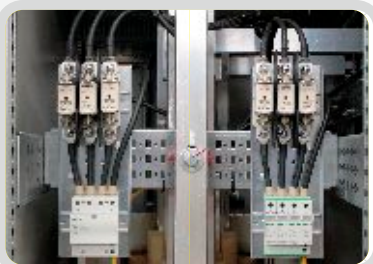
PROTECTION



An **electronic voltage regulator protection system** activates in case of overload on the voltage regulator.
In such condition, the **load supply is not interrupted**.

The auxiliary circuit is protected by **fuses**.

PROTECTION



Overvoltage protection:

- Class I input **surge arrester**
- Class II output **surge arrester**.

PROTECTION



Output voltage reset to the minimum value in case of blackout by means of **supercapacitors** banks in order to ensure the correct shutdown.

DISPLAY



The digital measuring instrumentation consist of two (input & output) **multi-task digital line analyser**.

Such instruments are able to provide with information regarding the status of the lines, upstream and downstream the voltage stabiliser, such as phase and linked voltages, current, power factor, active and apparent power, reactive power, etc.

MONITORED



The **operating status** of the stabiliser can be easily **monitored** by means of the LCD display and of the LED interface on the front panel, which display all the **information** and **alarms**.

MONITORED



Monitoring activities can be run remotely by installing on a PC (connected to the stabiliser via Ethernet) the **STABIMON software** provided with the unit. It is also possible to communicate with the stabiliser with the **Modbus TCP/IP** protocol.

MONITORED



The control system is able to interface with the **Internet** thanks to its capability to connect with **Ethernet** and **Gprs** protocols.

This allows for a remote monitoring of the equipment made by Ortea at its headquarters, thus guaranteeing **prompt assistance** worldwide.

QUALITY



In order to provide with the **best quality**, the productive process includes intermediate checks and a thorough **final test for each** voltage stabiliser.

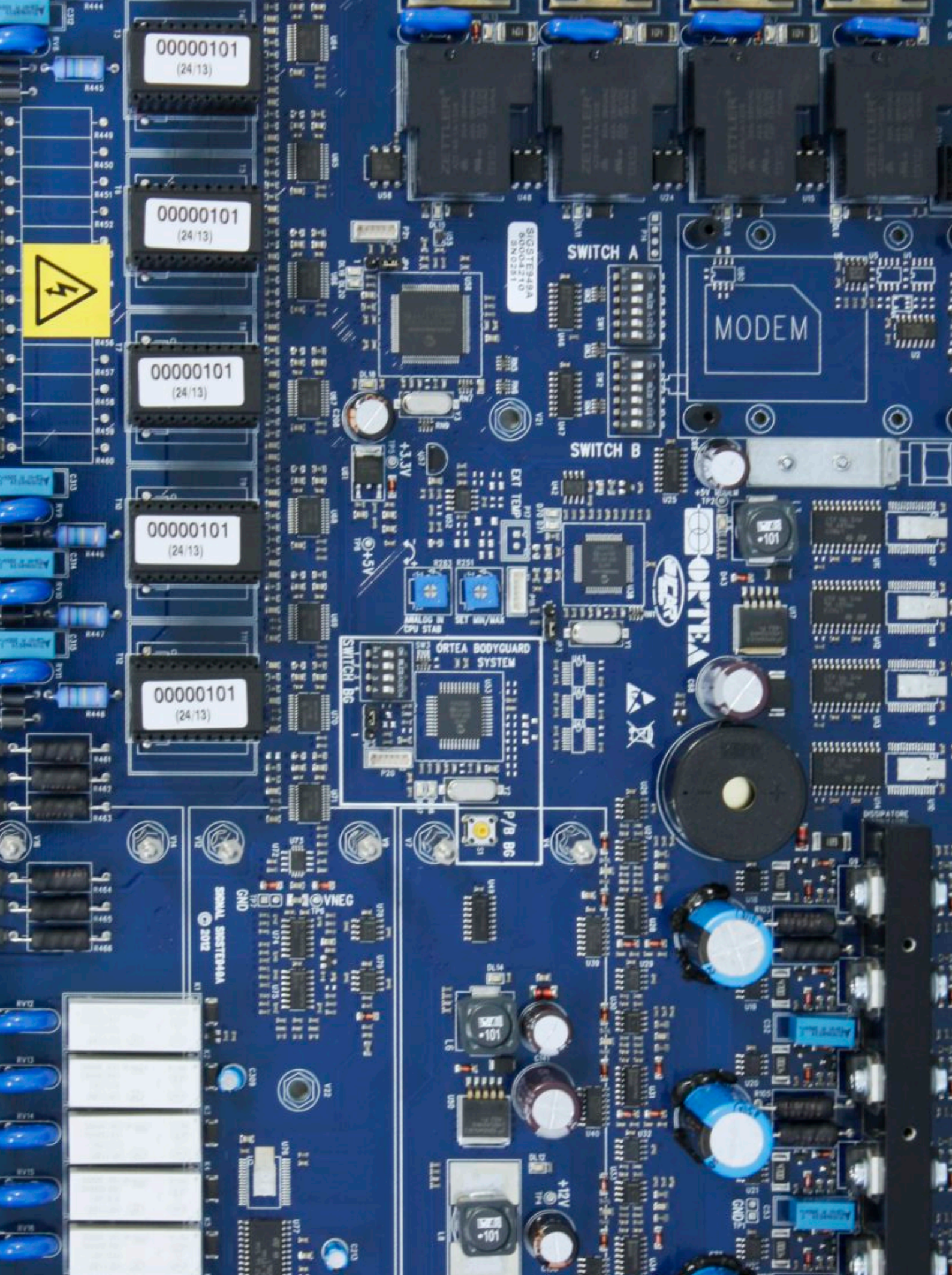
The implemented quality system ensures that all the production steps are controlled, from component verification at reception to the choice of the most suitable packaging depending on the type of transportation.

CERTIFICATION



Approved managing system:

- **ISO9001:2008**
- **ISO14001:2004**
- **OHSAS18001:2007**





APPROVED MANAGING SYSTEM



ISO9001



ISO14001



OHSAS18001

Founded in 1969, ORTEA SpA is a leading company in manufacturing and engineering voltage stabilisers and magnetic components.

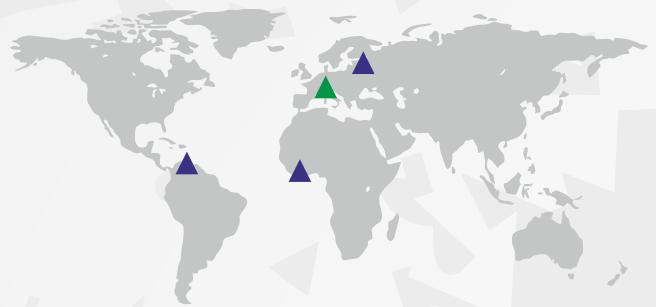
Over forty years in the business and ongoing technical research have made of ORTEA a competitive and technologically advanced company. Close co-operation between design, production and marketing enables to meet the requirements of a constantly growing number of customers.

In 1996 ORTEA joined ICAR Group, made of Italian and European industrial units specialised in manufacturing capacitors and power factor correction systems.

Beside standard production, ORTEA can be extremely flexible in developing and manufacturing special equipment according to User's specification. All this thanks to the experience gained over many years of applied technological development. Such development includes IT tools that enable the technical staff to elaborate electrical and mechanical designs for each «custom product» on a quick and cost-effective basis.

ORTEA is well established in the global market.

Thanks to strategically positioned offices and distributors and efficient commercial relations, ORTEA's products are installed and working in a large number of countries.



▲ ORTEA headquarters (Italy)

▲ ORTEA branches (Russia, Ivory Coast, Venezuela)

The present document is reserved property of ORTEA SpA:

it is compulsory to inform head office and ask for authorisation before proceeding with any release or reproduction. ORTEA SpA will not be held liable or responsible in any way for unauthorised copies, alterations or additions to the text or to the illustrated parts of this document. Any modification involving company logo, certification symbols, names and official data is strictly forbidden. In order to obtain better performance, ORTEA SpA reserves also the right to alter the products described in this document at any date and without prior notice. Technical data and descriptions do not therefore have any contractual value.



Via dei Chiosi, 21
20873 Cavenago di Brianza MB - ITALY

Phone: +39.02.95.917.800

Fax: +39.02.95.917.801

Mail: sales@ortea.com