ORTEA
BY ORTEA NEXT

STABLE VOLTAGE SUPPLY INDEPENDENTLY FROM INPUT FLUCTUATION IS THE KEY FEATURES TO ENSURE ELECTRICAL EFFICIENCY AND RELIABILITY

VOLTAGE STABILISERS

GENERAL SALES CONDITIONS
downloadable from our website

ABOUT ORTEA

Founded in 1969, ORTEA SpA is a leading company in manufacturing and engineering Power Quality solutions.

Fifty years in the business and ongoing technical research have made of ORTEA SpA 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.
Beside standard production, ORTEA SpA 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.

The ORTEA SpA products are installed and working in a large number of countries, and, thanks to strategically positioned offices and distributors, guarantee rapid and competent support.

QUALITY CERTIFIED

The belief that product quality and Customer satisfaction are the core of a modern organisation, led to the implementation of a certified Company Managing System.

CERTIFIED
ISO 9001 · ISO 14001
ISO 45001

A modern Company that wants to accept the challenge of today's business scenario cannot do so without conforming to standardized organizational criteria.
Customer satisfaction, product quality and responsible occupational practices are the basis on which the Company's activities can be consolidated. ORTEA SpA understood this a long time ago: the first ISO 9001 approval dates back to 1996.

Today ORTEA SpA Integrated Managing System is approved by Lloyd's Register according to the main Standards:

- ISO9001 (Quality management systems).
- ISO14001 (Environmental management systems).
- ISO45001 (Occupational health & safety management systems).

This means that ORTEA SpA can ensure that its performance is optimized in terms of internal process management, commitment towards environmental issues and attention to health & safety at work within the frame of a single Managing System.

ORTEA POWER QUALITY SOLUTIONS

Companies are more and more sensitive to Power Quality issues because they can cause troubles and damages to equipments and processes, up to interrupting the production cycle.

ORTEA SpA, with his brands ORTEA, ICAR and ENERSOLVE, offers a unique range of products and services for Power Quality and Energy Efficiency of low voltage electrical networks: voltage stabilisers, sag compensator, power factor correction systems, transformers and active harmonic filters.

VOLTAGE VARIATION	VOLTAGE STABILISERS	ORTEA
SAGs/DIPs	SAG COMPENSATOR	ORTEA
EXCESSIVE REACTIVE POWER	POWER FACTOR CORRECTION SYSTEMS	ICAR
UNPROTECTED LOADS	LV TRANSFORMERS	ORTEA
HARMONIC POLLUTION	ACTIVE HARMONIC FILTERS	ICAR
WASTE OF ENERGY	ENERGY EFFICIENCY SMART DEVICES	ENERSOLVE

ORTEA NEXT

IMPROVE YOUR POWER QUALITY

EXPERIENCE

Founded in 1969, ORTEA SpA has gained experience and know-how that enabled continuous growth and evolution. This never-ending process has allowed the Company to assume a leading role worldwide in designing and manufacturing Power Quality solutions.

RELIABILITY

Thanks also to its long-established Quality System, ORTEA SpA can ensure the production of reliable and long lasting products, each one of them accurately tested.

FLEXIBILITY

In addition to the standard production, the extremely flexible organization of ORTEA SpA is able to develop and manufacture cost-effective special equipment based on the Customer's specification.

QUALITY

Aiming at providing for the best quality, the manufacturing process includes checks during production and detail test sessions for each equipment.
The certified Integrated Managing System ensures the control of every manufacturing phase, starting from checking the components at reception and ending with the best package in relation to the transport type.

RESEARCH & DEVELOPMENT

ORTEA SpA constantly collaborates with Universities and Business Partners in the research and development of new products and new technologies.

SYNERGY

By working together, marketing, design, production and after-sales service allow the Company to meet the necessities set forth by an increasingly globalised and competitive market.

EXPERTISE

ORTEA SpA pre- and after-sales organization is able to intervene quickly, analyzing the problems and providing the correct solution.

CUSTOMER SERVICE

The continuous monitoring and analysis of requests and claims carried out by the after-sales service enables the improvement the quality of both products and service to the Customer.

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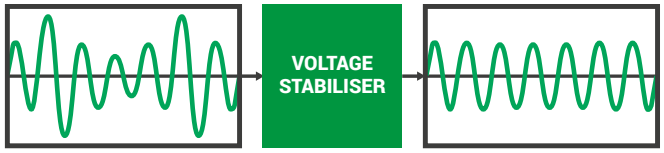
THE ISSUE

Electricity is perhaps the most essential raw material used by commerce and industry today.

The electricity produced in power plants is circulated through the electricity transmission and distribution networks and it is supplied/delivered to consumers; the quality of electricity (known as «Power Quality») is one of the important factors that determine the economic efficiency of both consumers and electrical networks.
Electrical devices are designed to work in distributing systems defined by set nominal values in terms of voltage and frequency (for example, 400V at 50Hz).
In actual fact, electric energy distribution might not ensure the stability of said nominal parameters. Voltage in particular can vary even considerably in relation to the nominal value. These variation can cause undesired and potentially dangerous conditions for the users.
Voltage “fluctuations’ can be ‘fast’ and waste themselves away in a few milliseconds (for example, distribution lines hit by lightning) or ‘slow', with duration that can last several seconds, minutes or even hours depending on the cause.
Slow fluctuations can be generated by increased voltage level (‘surge’ due to poor MV regulation at distribution level, disconnection of large loads, overvoltage at generators output, etc) or – more frequently – by decreased voltage level (‘sags’ due to connection of large loads, motor startup, undersized distribution lines, faults to ground, poor MV voltage regulation, etc).
In case of voltage variation, the voltage stabiliser is the solution that guarantees for the best cost/benefit ratio.
The continuous availability of stable voltage supply independently from input fluctuation is very often a key feature to ensure efficiency and reliability for the User.
Reduced productivity, data loss, security failure, machine faults, inaccurate information and domestic inconveniences are only a few examples of potential problems caused by unsteady supply. Obviously, all that results in higher managing cost.

THE SOLUTION



The voltage stabiliser has proven to be an effective solution able to prevent potentially dangerous situations created by input voltage instability.

The main application fields where devices sensitive to voltage variations can be used include:

- Industrial sector: oil & gas, laser cutting, water shearing, tobacco industry, textile industry, galvanic processes, machinery in general.
- Food & Beverage: industry, intensive breeding, food processing, packaging, bottling.
- Tertiary & servicing: banks, hotels & tourist resorts, data centre, laboratories, small businesses, private users.
- Telecommunications: TV/Radio stations, telecom networks.
- Public sector: hospitals, public offices & institutions.
- Renewable sources: solar and wind farms.

In all these applications, voltage fluctuation, even though within the tolerance admitted by the Standards, can generate operating issues.

In that case, devices particularly sensitive can show errors or malfunctions beyond the acceptable limit.

Typical situations where voltage can be subject to fluctuation beyond the admitted tolerance are:

- Loads supplied by weak or undersized distributing lines (rural areas or locations supplied by long distributing lines such as breeding farms, tourist resorts, hotels, etc).
- Users located near distributing station and therefore subject to voltage increase.
- Private premises with high power installations (swimming pool pumps, big chillers, special lighting systems, lifts) and/or particularly voltage sensitive loads (high power consumer electronics, etc.).
- Loads located near large industrial plants where individual high power devices (MV motors) can induce voltage reduction at startup.
- Island operating loads (ships, offshore rigs, loads not connected to the public grid).

In comparison to other types of equipment, the voltage stabilser offers a number of advantages that very often make it the optimum solution:

- Usually lower price.
- High output voltage stability guaranteed even for wide input fluctuation.
- Absence of introduced harmonic distortion.
- Robust and reliable construction, allowing for use in hard environments.
- Overload capability up to twice the rated current (max 2 mins).
- No concerns in terms of storage, transportation, maintenance and disposal due to the fact that batteries are not used.
- Smooth and reliable regulation of the load voltage ensuring a ±0.5% accuracy even with important input voltage variation.
- High efficiency.
- High inrush current withstand capability.
- Reduced dimension, simple to run, 'plug&play' operating mode.

ELECTRO-MECHANICAL OR STATIC VOLTAGE STABILISERS?

The static stabiliser is used when the correction speed represents the critical issue.

The static stabilisers (to use, for example, for computers, laboratory equipment, measuring benches and medical instrumentation) has correction time of 3 milliseconds for full regulation as compared to electro-mechanical stabiliser correction time of 10-50 milliseconds (depends on the model) per volt.

CRITERIA FOR CHOOSING THE RIGHT TYPE

Number of phases

The number of phases of a stabiliser depends on the type of load:

- single-phase load: single-phase stabiliser;
- combination of several single-phase loads on the same line: three-phase stabiliser or a single-phase stabiliser on each load;
- three-phase load: three-phase stabiliser.

Rated voltage

Due to the fact that the nominal voltage varies internationally, establish the rated voltage required at the stabiliser input and output. In case of threephase systems, provide with the line-to-line voltage value. The standard voltage stabiliser can operate with nominal voltage 380V-400V-415V (50Hz) or 440V-460V-480V (60Hz).

Input variation range

It's key information for the choice and the design of the stabiliser. Establish the amplitude of the oscillation of the input voltage and always keep a safety margin on such percentage: for example, if the measured fluctuation is ±16%, then choose a stabiliser suitable for ±20% variation. Note: if the input variation exceeds the nominal one, the difference is added to the output precision. For example, if a stabiliser designed for ±15% input variation receives a +20% voltage, the output precision shall not be ±0.5% but ±5.5%.

Type of regulation

The three-phase voltage stabilisers perform an independent regulation on each phase. The connection to the distributing line neutral wire is mandatory. Should the neutral wire not be available, a specific accessory component must be added.

Type of technology

In most applications, the electromechanical voltage stabiliser is a reliable and safe tool. In case of high regulation speed is required (milliseconds), it is better to choose the solution with regulation by means of IGBT static switches.

Rated power

All the stabilisers are designed for the maximum input current, but it is advisable to consider an extra safety margin for possible future expansions. In a voltage stabiliser, the power is expressed in kVA, whilst the load power is usually expressed in kW. Remember that the link between these two measuring units is provided by the power factor (cos φ): kVA = kW / cos φ.
Also, remember that if the power factor and/or the load power in kW cannot be easily established, measure the absorbed currents in order to allow for a correct design of the stabiliser and keeping in mind that:

- kVA (1-ph.) = load voltage x load current.
- kVA (3-ph.) = root of 3 x phase to phase load voltage x load current.

Installation

Choose the other characteristics of the stabiliser considering the installation conditions. The following aspect must be known:

- IP protection degree required.
- Indoor or outdoor installation.
- Site altitude and climatic characteristics.
- Ambient temperature.
- Possible environmental hazards such as aggressive atmosphere, exposure to chemical components and so on.

Accessories

A standard voltage stabiliser can be enriched with a number of accessories:

- Interruption and protection devices.
- Load protection against over/undervoltage.
- Bypass line.
- Input isolating transformer.
- Total protection kit.
- Surge arrestor (SPD).
- Integrated automatic power factor correction system.
- EMI/RFI filter.
- Neutral point reactor.
- Up to IP54/55 protection degree for both indoor and outdoor installation.

Special construction

By means of some modifications, it is possible to obtain special stabilisers able to:

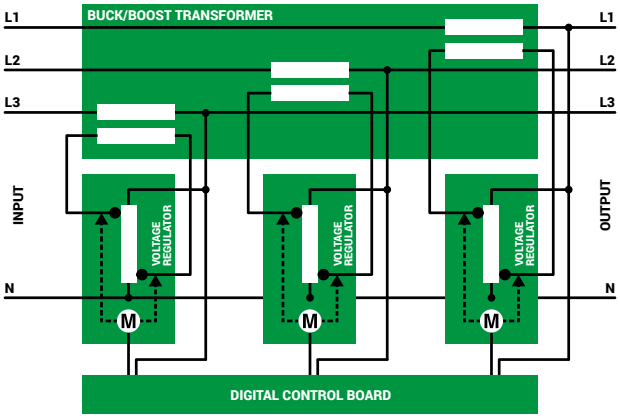
- deal with asymmetrical input voltage variation different from the standard range (for example, from -55% to +20% of the nominal voltage);
- deliver an output voltage different from the input one (for example, Vin = 400V ±15%, Vout = 460V ±0.5%).

ELECTRO-MECHANICAL DIGITAL VOLTAGE STABILISERS

DESIGN CRITERIA

A voltage stabiliser is a power device destined to be positioned between the mains and the User.
The purpose is to ensure that the User is fed a voltage subject to a variation much lower (±0.5% with regards to the nominal value) that the one guaranteed by the distributing system.

WORKING PRINCIPLE OF AN ELECTRO-MECHANICAL DIGITAL VOLTAGE STABILISER



The stabilization is performed on the "true rms" voltage and it is not affected by harmonics in the mains. Due to the fact that the regulation does not involve any intervention on the sinewave, neither an appreciable harmonic distortion nor a phase displacement is introduced on the downstream line.
The stabiliser is not affected by the load power factor (cos φ) and can operate with a load percentage varying between 0% and 100% on each phase. Regulation speed depends on the input voltage variation percentage and on the type of construction. Indicatively, said speed ranges between 8 and 30millisec/V.
Basically, a voltage stabiliser is made of a buck/boost transformer, a voltage regulator and an electronic control. Based on a microprocessor that samples at high frequency the output voltage, the control system drives the regulator gearmotor. By doing so, the regulator rollers change their position and therefore the voltage drawn and supplied to the buck/boost transformer primary winding. Being the secondary voltage of the buck/boost transformer in phase or in opposition to the supply, the voltage drawn from the regulator is added or subtracted to the mains voltage, thus compensating its variations.
The voltage regulator is nothing but an autotransformer with continuously variable transformer ratio. Depending on the stabiliser power, the regulator can be either toroidal or columnar.
The stabilisers are designed and built in compliance with the European Directives concerning CE marking (Low Voltage and Electromagnetic Compatibility Directives).
Standard units are housed in an IP21 metallic enclosure RAL7035 painted. Cooling is guaranteed by natural air circulation aided by extracting fans over a certain temperature.
The voltage stabiliser operating nominal voltage can be

chosen from values (generally included in the range 380V / 415V). Such setting can be performed at the factory or at the Customer's premises according to the instructions given in the reference technical handbook.
On Sirius and Sirius Advance stabilisers, the output voltage reference and the main configuration parameters can be set in different ways:

- through the local touch panel;
- directly by communicating with the microprocessor via a PC connection (through USB interfaces);
- from a remote station via Ethernet with MODBUS TCP/IP protocol.

MAIN COMPONENTS

1. Buck/boost transformer

Often referred to as 'booster' transformer, it is a standard dry-type transformer with the secondary winding connected in series to the mains and the primary winding supplied by the voltage regulator.

2. Voltage regulator

Basically, it is an autotransformer with continuously variable transformer ratio. The voltage intake varies depending on the position of the rolling contacts; therefore the voltage supplied to the booster transformer primary winding also varies. Being the voltage across the regulator contacts (and consequently that on the secondary winding of the booster transformer) either in phase or in opposition to the supply voltage, it is then added or subtracted to the supply voltage, thus compensating its variations.

3. Auxiliary circuit with microprocessor

The DSP (Digital Signal Processor) microprocessor-based control circuit (specifically designed for drives with totally digitalised signal) compares the output voltage value to the reference one sampling it 2000 times per second.
When an anomaly is detected, the control drives the voltage regulator gearmotor. By doing so, the regulator rollers change their position thus varying the voltage drawn and supplied to the buck/boost transformer primary winding. The input voltage variation is therefore automatically compensated.
The control system and the construction methods of the machine ensure that the output accuracy is ± 0.5%.

RANGE

VEGA	Single-phase	**0.3-25kVA**
ANTARES	Single-phase	**15-135kVA**
ORION	Three-phase	**2-135kVA**
ORION PLUS	Three-phase	**30-2000kVA**
SIRIUS	Three-phase	**60-6000kVA**
SIRIUS ADVANCE	Three-phase	**60-4000kVA**

STANDARD FEATURES

	SINGLE-PHASE		THREE-PHASE			
	VEGA	**ANTARES**	**ORION**	**ORION PLUS**	**SIRIUS**	**SIRIUS ADVANCE**
Output accuracy ±0,5%	✓	✓	✓	✓	✓	✓
Regulator rolling contacts	✓	✓	✓	✓	✓	✓
Toroidal regulator	✓	up to 80kVA*	✓	up to 200kVA*	X	X
Columnar regulator	X	from 100kVA*	X	from 250kVA*	✓	✓
Control electronic board (DSP microprocessor)	✓	✓	✓	✓	✓	✓
Local display	✓	X	X	X	✓	✓
Alarm / Diagnostics signal code	LCD Display	LED (board)	LED (board)	LED (panel)	Display	Display
Acoustic alarm	✓	✓	✓	✓	✓	✓
USB connection	X	X	X	✓	✓	✓
RS485 connection	X	●	●	●	✓	✓
Ethernet connection	X	●	●	●	✓	✓
MODBUS TCP/IP protocol	X	●	●	●	✓	✓
Maintenance required signal	X	X	X	✓	✓	✓
Regulator protection (magneto-thermal)	✓	✓	✓	X	X	X
Regulator protection (electronic)	X	X	X	✓	✓	✓
Overvoltage protection SPD cl. I	●	●	●	●	✓	✓
Overvoltage protection SPD cl. II	●	●	from 60kVA*	✓	✓	✓
Digital voltmeter	✓	X	X	X	X	X
Multimetre	●	✓	✓	✓	X	X
Multifunction Touch Display	X	X	X	X	✓	✓
Air conditioning cooling	X	●	●	●	●	●
Load variation up to 100%	✓	✓	✓	✓	✓	✓
Overload up to 200% for 2 mins.	✓	✓	✓	✓	✓	✓
Harmonic distortion	none introduced	none introduced	none introduced	none introduced	none introduced	none introduced
IP21 degree protection	✓	✓	✓	✓	✓	✓
Protection degree other than IP21	●	●	●	●	●	●
Indoor installation	✓	✓	✓	✓	✓	✓
Outdoor installation	●	●	●	●	●	●
Ambient temperature	-25/+45°C	-25/+45°C	-25/+45°C	-25/+45°C	-25/+45°C	-25/+45°C
Storage temperature	-25/+60°C	-25/+60°C	-25/+60°C	-25/+60°C	-25/+60°C	-25/+60°C
Max relative humidity	95%	95%	95%	95%	95%	95%
Ortea Cloud monitoring	X	X	X	●	●	X

✓ standard | X not available | ● optional
* These powers refer to ±15% models

VEGA

SINGLE-PHASE
0.3-25kVA

Standard features

Selectable output voltage (dip switch)*	220-230-240V
Frequency	50Hz ±5% or 60Hz ±5%
Output voltage accuracy	±0,5%
Admitted load variation	Up to 100%
Cooling	Natural ventilation
Ambient temperature	-25/+45°C
Storage temperature	-25/+60°C
Max relative humidity	<95% (non condensing)
Admitted overload	200% 2min.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP 21
Instrumentation	Output digital voltmetre
Installation	Indoor

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

Ratings in relation to the input variation percentage

±15%	±20%	±25%	±30%	+15/-25%	+15/-35%	+15/-45%
1	0.7	0.5	0.3	0.7	0.5	0.3
2.5	2	1.5	1	2	1.5	1
5	4	3	2	4	3	2
7	5	4	3	5	4	3
10	7	5	4	7	5	4
15	10	7	5	10	7	5
20	15	10	7	15	10	7
25	20	15	10	20	15	10

Accessories

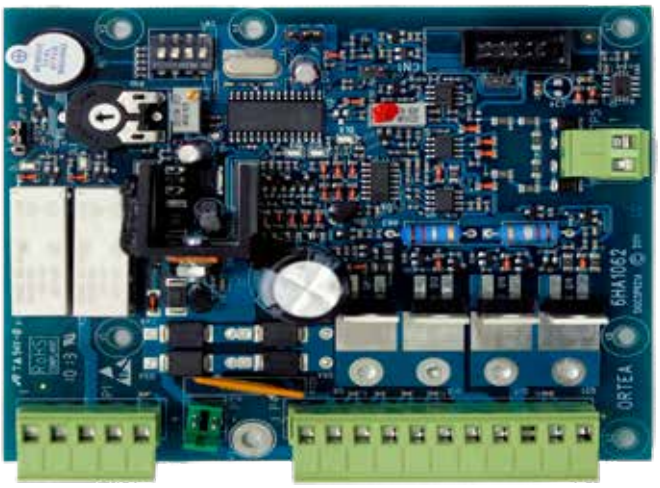
- Interrupting devices
- Load protection against over/undervoltage
- Manual by-pass line
- Input isolating transformer
- SPD surge arrestor
- EMI/RFI filters
- Up to IP55 protection degree for indoor and outdoor installation

CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 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 not hold therefore any contractual value.

Vega stabilisers are available for different ranges of input voltage fluctuation.
Standard models offer a double input connection so that with the same unit two different input variations (±15/±20% or ±25/±30%) can be dealt with.
An automatic circuit breaker is mounted on the regulation circuit to protect against overload and short circuit on the voltage regulator, whilst the auxiliary circuit is protected by fuses.
A digital display on the front panel shows the output voltage and the alarms (min/max output voltage, gearmotor lock, internal overheating, regulator overload).
The control logic is based on a digital microprocessor.

All Vega stabilisers are fitted with the same control card, thus simplifying maintenance operations and spare parts storage.

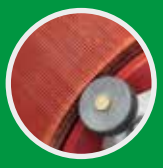


WIDE RANGE

Symmetrical: ±15%, ±20%, ±25%, ±30% (other on request).
Asyimmetrical: +15%/-25%, +15%/-35%, +15%/-45% (other on request).
Output voltage accuracy: ±0.5%.

TECHNOLOGY

Control logic based on digital microprocessor operating with a software specifically developed by Ortea (Starcontrol division).



LONG LIFE

Ortea system voltage regulator with rollers (without brushes, which are subject to heavy wear & tear).

PROTECTION

The voltage regulator is protected by a circuit breaker with magneto thermal release. The auxiliary circuit is protected by fuses.

INSTRUMENTATION

A digital display providing with output voltage and alarm readings is fitted on the front panel.

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Vega ±20%/±15%											
0.7-20	±20	0,7	184-276	3,8	230	3	>96	12	12	300x460x300	16
1-15	±15	1	195-265	5	230	4,3	>96	16	12	300x460x300	16
2-20	±20	2	184-276	11	230	8,7	>96	12	12	300x460x300	24
2.5-15	±15	2,5	195-265	13	230	11	>96	16	12	300x460x300	24
4-20	±20	4	184-276	22	230	17	>96	12	12	300x460x300	28
5-15	±15	5	195-265	26	230	22	>96	16	12	300x460x300	28
5-20	±20	5	184-276	27	230	22	>98	12	13	300x560x300	41
7-15	±15	7	195-265	36	230	30	>98	16	13	300x560x300	41
7-20	±20	7	184-276	38	230	30	>98	12	13	300x560x300	47
10-15	±15	10	195-265	51	230	43	>98	16	13	300x560x300	47
10-20	±20	10	184-276	54	230	43	>98	12	13	300x560x300	55
15-15	±15	15	195-265	77	230	65	>98	16	13	300x560x300	55
15-20	±20	15	184-276	82	230	65	>98	12	22	410x530x1200	125
20-15	±15	20	195-265	103	230	87	>98	16	22	410x530x1200	125
20-20	±20	20	184-276	109	230	87	>98	12	22	410x530x1200	145
25-15	±15	25	195-265	128	230	109	>98	16	22	410x530x1200	145

The values listed in the table are referred to 230V nominal voltage

Vega ±30%/±25%											
0.3-30	±30	0,3	161-300	1,9	230	1,3	>96	8	12	300x460x300	16
0.5-25	±25	0,5	172-288	2,9	230	2,2	>96	10	12	300x460x300	16
1-30	±30	1	161-300	6,2	230	4,3	>96	8	12	300x460x300	24
1.5-25	±25	1,5	172-288	8,7	230	6,5	>96	10	12	300x460x300	24
2-30	±30	2	161-300	12	230	8,7	>96	8	12	300x460x300	28
3-25	±25	3	172-288	17	230	13	>96	10	12	300x460x300	28
3-30	±30	3	161-300	19	230	13	>98	8	13	300x560x300	41
4-25	±25	4	172-288	23	230	17	>98	10	13	300x560x300	41
4-30	±30	4	161-300	25	230	17	>98	8	13	300x560x300	47
5-25	±25	5	172-288	29	230	22	>98	10	13	300x560x300	47
5-30	±30	5	161-300	31	230	22	>98	8	13	300x560x300	56
7-25	±25	7	172-288	41	230	30	>98	10	13	300x560x300	56
7-30	±30	7	161-300	43	230	30	>98	8	22	410x530x1200	125
10-25	±25	10	172-288	58	230	43	>98	10	22	410x530x1200	125
10-30	±30	10	161-300	62	230	43	>98	8	22	410x530x1200	145
15-25	±25	15	172-288	87	230	65	>98	10	22	410x530x1200	145

The values listed in the table are referred to 230V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Vega +15%/-25%											
0.7-15/25	+15/-25	0,7	172-265	4	230	3	>96	12	12	300x460x300	17
2-15/25	+15/-25	2	172-265	12	230	8,7	>96	12	12	300x460x300	25
4-15/25	+15/-25	4	172-265	23	230	17	>96	12	12	300x460x300	29
5-15/25	+15/-25	5	172-265	29	230	22	>98	12	13	300x560x300	42
7-15/25	+15/-25	7	172-265	41	230	30	>98	12	13	300x560x300	48
10-15/25	+15/-25	10	172-265	58	230	43	>98	12	13	300x560x300	56
15-15/25	+15/-25	15	172-265	87	230	65	>98	12	22	410x530x1200	125
20-15/25	+15/-25	20	172-265	116	230	87	>98	12	22	410x530x1200	145

The values listed in the table are referred to 230V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Vega +15%/-35%											
0.5-15/35	+15/-35	0,5	150-265	3,4	230	2,2	>96	10	12	300x460x300	17
1.5-15/35	+15/-35	1,5	150-265	10	230	6,5	>96	10	12	300x460x300	25
3-15/35	+15/-35	3	150-265	20	230	13	>96	10	12	300x460x300	29
4-15/35	+15/-35	4	150-265	27	230	17	>98	10	13	300x560x300	42
5-15/35	+15/-35	5	150-265	33	230	22	>98	10	13	300x560x300	48
7-15/35	+15/-35	7	150-265	47	230	30	>98	10	13	300x560x300	56
10-15/35	+15/-35	10	150-265	67	230	43	>98	10	22	410x530x1200	125
15-15/35	+15/-35	15	150-265	100	230	65	>98	10	22	410x530x1200	145

The values listed in the table are referred to 230V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Vega +15%/-45%											
0.3-15/45	+15/-45	0,3	126-265	2,4	230	1,3	>96	8	12	300x460x300	17
1-15/45	+15/-45	1	126-265	7,8	230	4,3	>96	8	12	300x460x300	25
2-15/45	+15/-45	2	126-265	16	230	8,7	>96	8	12	300x460x300	29
3-15/45	+15/-45	3	126-265	24	230	13	>98	8	13	300x560x300	42
4-15/45	+15/-45	4	126-265	32	230	17	>98	8	13	300x560x300	48
5-15/45	+15/-45	5	126-265	40	230	22	>98	8	13	300x560x300	56
7-15/45	+15/-45	7	126-265	56	230	30	>98	8	22	410x530x1200	125
10-15/45	+15/-45	10	126-265	79	230	43	>98	8	22	410x530x1200	145

The values listed in the table are referred to 230V nominal voltage

ANTARES

SINGLE-PHASE
15-135kVA

Standard features

Selectable output voltage (dip-switch)*	220-230-240V
Output voltage accuracy	±0,5%
Frequency	50Hz ±5% or 60Hz ±5%
Admitted load variation	Up to 100%
Cooling	Natural ventilation (aided with fans)
Ambient temperature	-25/+45°C
Storage temperature	-25/+60°C
Max relative humidity	<95% (non condensing)
Admitted overload	200% 2min.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP 21
Instrumentation	Output digital multimetre
Installation	Indoor
Overvoltage protection	Output class II surge arrestors

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

Ratings in relation to the input variation percentage

±15%	±20%	±25%	±30%	+15/-25%	+15/-35%	+15/-45%
35	25	20	15	25	20	15
45	35	25	20	35	25	20
60	45	35	25	45	35	25
80	60	45	35	60	45	35
100	80	60	45	80	60	45
135	100	80	60	100	80	60

Accessories

- Interrupting devices
- Load protection against over/undervoltage
- Manual by-pass line
- Input isolating transformer
- SPD surge arrestor
- EMI/RFI filters
- Up to IP55 protection degree for indoor and outdoor installation

CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 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 not hold therefore any contractual value.

Antares stabilisers are available for different ranges of input voltage fluctuation.
Standard models offer a double input connection so that with the same unit two different input variations (±1 5%/±20% or ±25%/±30%) can be dealt with.
An automatic circuit breaker is provided on the regulation circuit to protect against overload and short circuit on the voltage regulator whilst the auxiliary circuit is protected by fuses.
The instrumentation consists of a digital multimetre installed on the cabinet front panel.
The alarms (min/max output voltage, gearmotor lock, internal overheating, regulator overload) are recognizable by means of LEDs on the control card.
The control logic is based on a digital microprocessor.

All Antares stabilisers are fitted with the same control card, thus simplifying maintenance operations and spare parts storage.

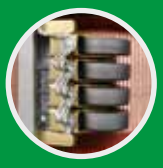
WIDE RANGE

Symmetrical: ±15%, ±20%, ±25%, ±30% (other on request).
Asyimmetrical: +15%/-25%, +15%/-35%, +15%/-45% (other on request).

Output voltage accuracy: ±0.5%.

TECHNOLOGY

Control logic based on digital microprocessor operating with a software specifically developed by Ortea (Starcontrol division).



LONG LIFE

Ortea system voltage regulator with rollers (without brushes, which are subject to heavy wear & tear).

PROTECTION

The voltage regulator is protected by a circuit breaker with magneto thermal release. The auxiliary circuit is protected by fuses.
Overvoltage protection: Class II output surge arrestor.

INSTRUMENTATION

The digital measuring instrumentation is installed on the front panel and consist of an output digital multimetre.

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Antares ±20%/±15%											
25-20	±20	25	184-276	136	230	109	>98	12	23	410x680x1200	180
35-15	±15	35	195-265	179	230	152	>98	16	23	410x680x1200	180
35-20	±20	35	184-276	190	230	152	>98	12	31	600x600x1600	200
45-15	±15	45	195-265	231	230	196	>98	16	31	600x600x1600	200
45-20	±20	45	184-276	245	230	196	>98	12	40	600x800x1600	320
60-15	±15	60	195-265	308	230	261	>98	16	40	600x800x1600	320
60-20	±20	60	184-276	326	230	261	>98	12	40	600x800x1600	390
80-15	±15	80	195-265	410	230	348	>98	16	40	600x800x1600	390
80-20	±20	80	184-276	435	230	348	>98	12	51	600x800x1800	410
100-15	±15	100	195-265	513	230	435	>98	16	51	600x800x1800	410
100-20	±20	100	184-276	543	230	435	>98	12	51	600x800x1800	650
135-15	±15	135	195-265	692	230	587	>98	16	51	600x800x1800	650

The values listed in the table are referred to 230V nominal voltage

Antares ±30%/±25%											
15-30	±30	15	161-300	93	230	65	>98	8	23	410x680x1200	180
20-25	±25	20	172-288	116	230	87	>98	10	23	410x680x1200	180
20-30	±30	20	161-300	124	230	87	>98	8	31	600x600x1600	200
25-25	±25	25	172-288	145	230	109	>98	10	31	600x600x1600	200
25-30	±30	25	161-300	155	230	109	>98	8	40	600x800x1600	320
35-25	±25	35	172-288	203	230	152	>98	10	40	600x800x1600	320
35-30	±30	35	161-300	217	230	152	>98	8	40	600x800x1600	390
45-25	±25	45	172-288	262	230	196	>98	10	40	600x800x1600	390
45-30	±30	45	161-300	280	230	196	>98	8	51	600x800x1800	550
60-25	±25	60	172-288	349	230	261	>98	10	51	600x800x1800	550
60-30	±30	60	161-300	373	230	261	>98	8	51	600x800x1800	650
80-25	±25	80	172-288	465	230	348	>98	10	51	600x800x1800	650

The values listed in the table are referred to 230V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Antares +15%/-25%											
25-15/25	+15/-25	25	172-265	145	230	109	>98	14	23	410x680x1200	190
35-15/25	+15/-25	35	172-265	203	230	152	>98	14	31	600x600x1600	210
45-15/25	+15/-25	45	172-265	262	230	196	>98	14	40	600x800x1600	330
60-15/25	+15/-25	60	172-265	349	230	261	>98	14	40	600x800x1600	400
80-15/25	+15/-25	80	172-265	465	230	348	>98	14	51	600x800x1800	560
100-15/25	+15/-25	100	172-265	581	230	435	>98	14	51	600x800x1800	660

The values listed in the table are referred to 230V nominal voltage

Antares +15%/-35%											
20-15/35	+15/-35	20	150-265	133	230	87	>98	11	23	410x680x1200	200
25-15/35	+15/-35	25	150-265	167	230	109	>98	11	31	600x600x1600	220
35-15/35	+15/-35	35	150-265	233	230	152	>98	11	40	600x800x1600	340
45-15/35	+15/-35	45	150-265	300	230	196	>98	11	40	600x800x1600	410
60-15/35	+15/-35	60	150-265	400	230	261	>98	11	51	600x800x1800	570
80-15/35	+15/-35	80	150-265	533	230	348	>98	11	51	600x800x1800	670

The values listed in the table are referred to 230V nominal voltage

Antares +15%/-45%											
15-15/45	+15/-45	15	126-265	119	230	65	>98	9	23	410x680x1200	210
20-15/45	+15/-45	20	126-265	159	230	87	>98	9	31	600x600x1600	230
25-15/45	+15/-45	25	126-265	198	230	109	>98	9	40	600x800x1600	350
35-15/45	+15/-45	35	126-265	278	230	152	>98	9	40	600x800x1600	420
45-15/45	+15/-45	45	126-265	357	230	196	>98	9	51	600x800x1800	580
60-15/45	+15/-45	60	126-265	476	230	261	>98	9	51	600x800x1800	680

The values listed in the table are referred to 230V nominal voltage

ORION

THREE-PHASE
2-135kVA

Standard features

Voltage stabilisation	Independent phase control
Selectable output voltage (dip-switch)*	220-230-240V (L-N) / 380-400-415V (L-L)
Output voltage accuracy	±0,5%
Frequency	50Hz ±5% or 60Hz ±5%
Admitted load variation	Up to 100%
Admitted load imbalance	100%
Cooling	Up to 45kVA ±15% natural ventilation From 60kVA ±15% aided with fans
Ambient temperature	-25/+45°C
Storage temperature	-25/+60°C
Max relative humidity	<95% (non condensing)
Admitted overload	200% 2min.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP 21
Instrumentation	Output digital multimetre
Installation	Indoor
Overvoltage protection	Output class II surge arrestors (over 60kVA ±15%)

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

Ratings in relation to the input variation percentage

±15%	±20%	±25%	±30%	+15/-25%	+15/-35%	+15/-45%
5	4	3	2	4	3	2
10	7	4	3	7	4	3
15	10	7	4	10	7	4
20	15	10	7	15	10	7
30	20	15	10	20	15	10
45	30	20	15	30	20	15
60	45	30	20	45	30	20
80	60	45	30	60	45	30
105	80	60	45	80	60	45
135	105	80	60	105	80	60

Accessories

- Interrupting devices
- Load protection against over/undervoltage
- Manual by-pass line
- Input isolating transformer
- SPD surge arrestor
- EMI/RFI filters
- Neutral point reactor
- Up to IP55 protection degree for indoor and outdoor installation

CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 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 not hold therefore any contractual value.

Orion stabilisers are available for different ranges of input voltage fluctuation.
Standard models offer a double input connection so that with the same unit two different input variations (±15%/±20% or ±25%/±30%) can be dealt with.
The output voltage regulation is performed independently on each phase (stabilization of each phase-to-neutral voltage).
Orion stabilisers are used with three-phase loads and single-phase loads with 100% current imbalance across the phases and asymmetrical mains voltage.
For the correct operation, Orion voltage stabilisers require the neutral wire presence. Operation without neutral wire connection is achievable by adding a device able to generate it (D/Yn isolating transformer or neutral point reactor).
An automatic circuit breaker is mounted on the regulation circuit to protect against overload and short circuit on the voltage regulator, whilst the auxiliary circuit is protected by fuses.
The instrumentation consists of a multi-task digital line analyser. Such instrument is able to provide with information regarding the voltage stabiliser output parametres, such as phase and linked voltage, current, power factor, active power, apparent power, reactive power, etc.
The alarms (min/max output voltage, gearmotor lock, internal overheating, regulator overload) are recognizable by means of LEDs on the control card.
Voltage control and stabilisation, performed on the true RMS value, are managed by the digital microprocessor.
Each phase of every stabiliser belonging to this range is controlled by the same control board used on Vega and Antares models, thus simplifying maintenance operations and spare parts storage.
Up to 45kVA, the stabilisers are equipped with wheels for easy handling.

WIDE RANGE

Symmetrical: ±15%, ±20%, ±25%, ±30% (other on request).
Asyimmetrical: +15%/-25%, +15%/-35%, +15%/-45% (other on request).

Output voltage accuracy: ±0.5%.

TECHNOLOGY

Control and stabilisation, performed on the true RMS value, are based on a digital microprocessor operating with a software specifically developed by Ortea (Starcontrol division).
Independent regulation on each phase.

LONG LIFE

Ortea system voltage regulator with rollers (without brushes, which are subject to heavy wear & tear).

PROTECTION

The voltage regulator is protected by a circuit breaker with magneto thermal release. The auxiliary circuit is protected by fuses. Overvoltage protection: Class II output surge arrestor.

INSTRUMENTATION

Multi-task digital analyser mounted on the front panel (linked and phase voltage current, frequency, power factor, active power, reactive power, apparent power etc.).

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Orion ±20%/±15%											
4-20	±20	4	320-480	7,3	400	5,8	>96	12	22	410x530x1200	90
5-15	±15	5	340-460	8,5	400	7,2	>96	16	22	410x530x1200	90
7-20	±20	7	320-480	13	400	10	>96	12	22	410x530x1200	110
10-15	±15	10	340-460	17	400	14	>96	16	22	410x530x1200	110
10-20	±20	10	320-480	18	400	14	>96	12	22	410x530x1200	140
15-15	±15	15	340-460	25	400	22	>96	16	22	410x530x1200	140
15-20	±20	15	320-480	27	400	22	>98	12	23	410x680x1200	155
20-15	±15	20	340-460	34	400	29	>98	16	23	410x680x1200	155
20-20	±20	20	320-480	36	400	29	>98	12	23	410x680x1200	180
30-15	±15	30	340-460	51	400	43	>98	16	23	410x680x1200	180
30-20	±20	30	320-480	54	400	43	>98	12	23	410x680x1200	200
45-15	±15	45	340-460	76	400	65	>98	16	23	410x680x1200	200
45-20	±20	45	320-480	81	400	65	>98	12	31	600x600x1600	310
60-15	±15	60	340-460	102	400	87	>98	16	31	600x600x1600	310
60-20	±20	60	320-480	108	400	87	>98	12	40	600x800x1600	425
80-15	±15	80	340-460	136	400	115	>98	16	40	600x800x1600	425
80-20	±20	80	320-480	144	400	115	>98	12	51	600x800x1800	510
105-15	±15	105	340-460	178	400	152	>98	16	51	600x800x1800	510
105-20	±20	105	320-480	189	400	152	>98	12	51	600x800x1800	580
135-15	±15	135	340-460	229	400	195	>98	16	51	600x800x1800	580

The values listed in the table are referred to 400V nominal voltage

Orion ±30%/±25%											
2-30	±30	2	280-520	4,1	400	2,9	>96	8	22	410x530x1200	90
3-25	±25	3	300-500	5,7	400	4,3	>96	10	22	410x530x1200	90
3-30	±30	3	280-520	6,1	400	4,3	>96	8	22	410x530x1200	110
4-25	±25	4	300-500	7,7	400	5,8	>96	10	22	410x530x1200	110
4-30	±30	4	280-520	8,3	400	5,8	>96	8	22	410x530x1200	140
7-25	±25	7	300-500	13	400	10	>96	10	22	410x530x1200	140
7-30	±30	7	280-520	14	400	10	>98	8	23	410x680x1200	155
10-25	±25	10	300-500	19	400	14	>98	10	23	410x680x1200	155
10-30	±30	10	280-520	21	400	14	>98	8	23	410x680x1200	180
15-25	±25	15	300-500	29	400	22	>98	10	23	410x680x1200	180
15-30	±30	15	280-520	31	400	22	>98	8	23	410x680x1200	200
20-25	±25	20	300-500	38	400	29	>98	10	23	410x680x1200	200
20-30	±30	20	280-520	41	400	29	>98	8	31	600x600x1600	310
30-25	±25	30	300-500	58	400	43	>98	10	31	600x600x1600	310
30-30	±30	30	280-520	62	400	43	>98	8	40	600x800x1600	425
45-25	±25	45	300-500	87	400	65	>98	10	40	600x800x1600	425
45-30	±30	45	280-520	93	400	65	>98	8	51	600x800x1800	510
60-25	±25	60	300-500	115	400	87	>98	10	51	600x800x1800	510
60-30	±30	60	280-520	124	400	87	>98	8	51	600x800x1800	580
80-25	±25	80	300-500	154	400	115	>98	10	51	600x800x1800	580

The values listed in the table are referred to 400V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Orion +15%/-25%											
4-15/25	+15/-25	4	300-460	7,7	400	5,8	>96	14	22	410x530x1200	100
7-15/25	+15/-25	7	300-460	13	400	10	>96	14	22	410x530x1200	130
10-15/25	+15/-25	10	300-460	19	400	14	>96	14	22	410x530x1200	150
15-15/25	+15/-25	15	300-460	29	400	22	>98	14	23	410x680x1200	165
20-15/25	+15/-25	20	300-460	38	400	29	>98	14	23	410x680x1200	190
30-15/25	+15/-25	30	300-460	58	400	43	>98	14	23	410x680x1200	220
45-15/25	+15/-25	45	300-460	87	400	65	>98	14	40	600x800x1600	390
60-15/25	+15/-25	60	300-460	115	400	87	>98	14	51	600x800x1800	460
80-15/25	+15/-25	80	300-460	154	400	115	>98	14	51	600x800x1800	530
105-15/25	+15/-25	105	300-460	202	400	152	>98	14	51	600x800x1800	600

The values listed in the table are referred to 400V nominal voltage

Orion +15%/-35%											
3-15/35	+15/-35	3	260-460	6,6	400	4,3	>96	10	22	410x530x1200	100
4-15/35	+15/-35	4	260-460	8,9	400	5,8	>96	10	22	410x530x1200	130
7-15/35	+15/-35	7	260-460	16	400	10	>96	10	22	410x530x1200	150
10-15/35	+15/-35	10	260-460	22	400	14	>98	10	23	410x680x1200	165
15-15/35	+15/-35	15	260-460	33	400	22	>98	10	23	410x680x1200	190
20-15/35	+15/-35	20	260-460	44	400	29	>98	10	23	410x680x1200	220
30-15/35	+15/-35	30	260-460	67	400	43	>98	10	40	600x800x1600	390
45-15/35	+15/-35	45	260-460	100	400	65	>98	10	51	600x800x1800	460
60-15/35	+15/-35	60	260-460	133	400	87	>98	10	51	600x800x1800	530
80-15/35	+15/-35	80	260-460	178	400	115	>98	10	51	600x800x1800	600

The values listed in the table are referred to 400V nominal voltage

Orion +15%/-45%											
2-15/45	+15/-45	2	220-460	5,3	400	2,9	>96	8	22	410x530x1200	100
3-15/45	+15/-45	3	220-460	7,8	400	4,3	>96	8	22	410x530x1200	130
4-15/45	+15/-45	4	220-460	10	400	5,8	>96	8	22	410x530x1200	150
7-15/45	+15/-45	7	220-460	18	400	10	>98	8	23	410x680x1200	165
10-15/45	+15/-45	10	220-460	26	400	14	>98	8	23	410x680x1200	190
15-15/45	+15/-45	15	220-460	39	400	22	>98	8	23	410x680x1200	220
20-15/45	+15/-45	20	220-460	52	400	29	>98	8	40	600x800x1600	390
30-15/45	+15/-45	30	220-460	79	400	43	>98	8	51	600x800x1800	460
45-15/45	+15/-45	45	220-460	118	400	65	>98	8	51	600x800x1800	530
60-15/45	+15/-45	60	220-460	157	400	87	>98	8	51	600x800x1800	600

The values listed in the table are referred to 400V nominal voltage

ORION PLUS

THREE-PHASE
30-2000kVA

Standard features

Voltage stabilisation	Independent phase control
PC selectable output voltage*	from 210V to 255V (L-N) from 360V to 440V (L-L)
Output voltage accuracy	±0,5%
Frequency	50Hz ±5% or 60Hz ±5%
Admitted load variation	Up to 100%
Admitted load imbalance	100%
Cooling	Natural ventilation (from 35°C aided with fans)
Ambient temperature	-25/+45°C
Storage temperature	-25/+60°C
Max relative humidity	<95% (non condensing)
Admitted overload	200% 2min.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP 21
Instrumentation	Input & Output digital multimetre
Installation	Indoor
Overvoltage protection	• Class II output surge arrestors • Optimal voltage return through supercapacitors in case of black-out

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

Ratings in relation to the input variation percentage

±10%	±15%	±20%	±25%	±30%	+15/-35%	+15/-45%
125	80	60	45	30	45	30
160	105	80	60	45	60	45
200	135	105	80	60	80	60
250	160	135	105	80	90	80
320	200	160	135	105	135	105
400	250	200	160	135	160	135
500	320	250	200	160	200	160
630	400	320	250	200	250	200
800	500	400	320	250	320	250
1000	630	500	400	320	400	320
1250	800	630	500	400	500	400
1600	1000	800	630	500	630	500
2000	1250	1000	800	630	800	630

CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 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 not hold therefore any contractual value.

Accessories

Interrupting devices
Load protection against over/undervoltage
Manual by-pass line
Total protection kit
Input isolating transformer
Integrated automatic power factor correction system
SPD surge arrestor
EMI/RFI filters
Neutral point reactor
Up to IP55 protection degree for indoor and outdoor installation
Ortea Cloud monitoring

Orion stabilisers are available for different ranges of input Orion Plus stabilisers are available for different ranges of input voltage fluctuation. In the ±15%/ ±20% and ±25%/ ±30% types, the change of input range is obtained through different internal connections.
The Orion Plus voltage stabilisers regulate the output voltage independently on each phase.
Similarly to the Orion stabilisers, they can supply any single-phase, bi-phase and three-phase load even in case of and up to 100% unbalanced load current and asymmetrical mains distribution.
In this configuration, the presence of the neutral wire is required. The stabiliser can also operate without neutral wire by adding a device able to generate it (D/zn or D /yn isolating transformer or neutral point reactor).
The stabilisers are cooled via natural air ventilation, assisted by extracting fans when the cabinet internal temperature exceeds 35°C).
The instrumentation consists of two multi-task digital line analysers which are able to provide with information regarding the status of the lines upstream and downstream the voltage stabiliser (phase and linked voltages, current, power factor, active power, apparent power, reactive power, etc.).
The operating status of the stabiliser can be monitored by means of the LEDs on the front panel displaying all the information regarding each phase operating mode ('power on'; reaching of voltage regulation limits; increase/decrease of voltage regulation) and the possible alarms (minimum and maximum voltage, maximum current: overtemperature; ventilation failure). The alarm indicators are accompanied by an acoustic alarm.
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 auxiliary circuits are protected by fuses.
The control logic, performed on the true RMS value, is based on DSP microprocessors.
The unit parameters and the output voltage reference can be set by using a personal computer, thus allowing for dealing directly in the field with any problems related to voltage stability.
All Orion Plus stabilisers are provided with Class II SPD surge arrestor.

WIDE RANGE

Symmetrical: ±10%, ±15%, ±20%, ±25%, ±30% (other on request).
Asyimmetrical: +15%/-35%, +15%/-45% (other on request).

Output voltage accuracy: ±0.5%.

TECHNOLOGY

Control and stabilisation, performed on the true RMS value, are based on a digital microprocessor operating with a software specifically developed by Ortea (Starcontrol division).
Parameters and reference voltage can be set via a PC, thus allowing for adjustig the stabiliser to the actual site conditions.
Independent regulation on each phase.

LONG LIFE

Ortea system voltage regulator with rollers (without brushes, which are subject to heavy wear & tear).
Depending on the rating, the voltage regulator could be toroidal or columnar.

PROTECTION

The stabiliser is provided of an electronic voltage regulator protection system activates in case of overload on the voltage regulator. In such conditions, the load supply is not interrupted.
The auxiliary circuit is protected by fuses.
Overvoltage protection: Class II output surge arrestor.

PROTECTION

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

INSTRUMENTATION

Two multi-task digital analyser mounted on the front panel (linked and phase voltage current, frequency, power factor, active power, reactive power, apparent power etc.).

MONITORING

The stabiliser operating mode can be easily monitored by means of the LEDs on the front panel, which provide with information and alarms.

ORTEA CLOUD

The operating status of the stabiliser can also be easily monitored via web through the Ortea Cloud platform.
The dashboard intuitively displays all information, parameters and any alarms.
Ortea Cloud is available as an accessory.

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Orion plus ±10%											
125-10	±10	125	360-440	200	400	180	>98	24	51	600x800x1800	430
160-10	±10	160	360-440	257	400	231	>98	24	51	600x800x1800	490
200-10	±10	200	360-440	321	400	289	>98	24	51	600x800x1800	580
250-10	±10	250	360-440	401	400	361	>98	30	55	1200x800x1800	850
320-10	±10	320	360-440	513	400	462	>98	30	55	1200x800x1800	950
400-10	±10	400	360-440	642	400	577	>98	30	42	800x800x2000	800
500-10	±10	500	360-440	802	400	722	>98	30	55	1200x800x1800	850
630-10	±10	630	360-440	1010	400	909	>98	30	55	1200x800x1800	1100
800-10	±10	800	360-440	1283	400	1155	>98	30	53	1200x800x2000	1300
1000-10	±10	1000	360-440	1604	400	1443	>98	30	62	1800x1000x2000	1530
1250-10	±10	1250	360-440	2005	400	1804	>98	36	62	1800x1000x2000	1900
1600-10	±10	1600	360-440	2566	400	2309	>98	36	63	2400x1000x2000	2400
2000-10	±10	2000	360-440	3208	400	2887	>98	36	64	3000x1000x2000	2650

The values listed in the table are referred to 400V nominal voltage

Orion plus ±20%/±15%											
60-20	±20	60	320-480	108	400	87	>98	12	51	600x800x1800	430
80-15	±15	80	340-460	136	400	115	>98	16	51	600x800x1800	430
80-20	±20	80	320-480	144	400	115	>98	12	51	600x800x1800	490
105-15	±15	105	340-460	178	400	152	>98	16	51	600x800x1800	490
105-20	±20	105	320-480	189	400	152	>98	12	51	600x800x1800	580
135-15	±15	135	340-460	229	400	195	>98	16	51	600x800x1800	580
135-20	±20	135	320-480	243	400	195	>98	15	55	1200x800x1800	850
160-15	±15	160	340-460	272	400	231	>98	20	55	1200x800x1800	850
160-20	±20	160	320-480	289	400	231	>98	15	55	1200x800x1800	950
200-15	±15	200	340-460	340	400	289	>98	20	55	1200x800x1800	950
200-20	±20	200	320-480	361	400	289	>98	15	42	800x800x2000	800
250-15	±15	250	340-460	425	400	361	>98	20	42	800x800x2000	800
250-20	±20	250	320-480	451	400	361	>98	15	55	1200x800x1800	850
320-15	±15	320	340-460	543	400	462	>98	20	55	1200x800x1800	850
320-20	±20	320	320-480	577	400	462	>98	15	55	1200x800x1800	1100
400-15	±15	400	340-460	679	400	577	>98	20	55	1200x800x1800	1100
400-20	±20	400	320-480	722	400	577	>98	15	53	1200x800x2000	1300
500-15	±15	500	340-460	849	400	722	>98	20	53	1200x800x2000	1300
500-20	±20	500	320-480	902	400	722	>98	15	62	1800x1000x2000	1530
630-15	±15	630	340-460	1070	400	909	>98	20	62	1800x1000x2000	1530
630-20	±20	630	320-480	1137	400	909	>98	18	62	1800x1000x2000	1900
800-15	±15	800	340-460	1359	400	1155	>98	24	62	1800x1000x2000	1900
800-20	±20	800	320-480	1443	400	1155	>98	18	63	2400x1000x2000	2400
1000-15	±15	1000	340-460	1698	400	1443	>98	24	63	2400x1000x2000	2400
1000-20	±20	1000	320-480	1804	400	1443	>98	18	78	2400x1000x2200	2630
1250-15	±15	1250	340-460	2123	400	1804	>98	24	78	2400x1000x2200	2630

The values listed in the table are referred to 400V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Orion plus ±30%/±25%											
30-30	±30	30	280-520	62	400	43	>98	8	51	600x800x1800	430
45-25	±25	45	300-500	87	400	65	>98	10	51	600x800x1800	430
45-30	±30	45	280-520	93	400	65	>98	8	51	600x800x1800	490
60-25	±25	60	300-500	115	400	87	>98	10	51	600x800x1800	490
60-30	±30	60	280-520	124	400	87	>98	8	51	600x800x1800	580
80-25	±25	80	300-500	154	400	115	>98	10	51	600x800x1800	580
80-30	±30	80	280-520	165	400	115	>98	10	55	1200x800x1800	850
105-25	±25	105	300-500	202	400	152	>98	12	55	1200x800x1800	850
105-30	±30	105	280-520	217	400	152	>98	10	55	1200x800x1800	950
135-25	±25	135	300-500	260	400	195	>98	12	55	1200x800x1800	950
135-30	±30	135	280-520	278	400	195	>98	10	42	800x800x2000	800
160-25	±25	160	300-500	308	400	231	>98	12	42	800x800x2000	800
160-30	±30	160	280-520	330	400	231	>98	10	55	1200x800x1800	850
200-25	±25	200	300-500	385	400	289	>98	12	55	1200x800x1800	850
200-30	±30	200	280-520	412	400	289	>98	10	55	1200x800x1800	1100
250-25	±25	250	300-500	481	400	361	>98	12	55	1200x800x1800	1100
250-30	±30	250	280-520	516	400	361	>98	10	53	1200x800x2000	1300
320-25	±25	320	300-500	616	400	462	>98	12	53	1200x800x2000	1300
320-30	±30	320	280-520	660	400	462	>98	10	62	1800x1000x2000	1530
400-25	±25	400	300-500	770	400	577	>98	12	62	1800x1000x2000	1530
400-30	±30	400	280-520	825	400	577	>98	12	62	1800x1000x2000	1900
500-25	±25	500	300-500	962	400	722	>98	15	62	1800x1000x2000	1900
500-30	±30	500	280-520	1031	400	722	>98	12	63	2400x1000x2000	2400
630-25	±25	630	300-500	1212	400	909	>98	15	63	2400x1000x2000	2400
630-30	±30	630	280-520	1299	400	909	>98	12	78	2400x1000x2200	2630
800-25	±25	800	300-500	1540	400	1155	>98	15	78	2400x1000x2200	2630

The values listed in the table are referred to 400V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Orion plus +15%/-35%											
45-15/35	+15/-35	45	260-460	100	400	65	>98	10	51	600x800x1800	470
60-15/35	+15/-35	60	260-460	133	400	87	>98	10	51	600x800x1800	550
80-15/35	+15/-35	80	260-460	178	400	115	>98	10	51	600x800x1800	600
90-15/35	+15/-35	90	260-460	200	400	130	>98	12	68	800x1000x2000	900
135-15/35	+15/-35	135	260-460	300	400	195	>98	12	68	800x1000x2000	1000
160-15/35	+15/-35	160	260-460	355	400	231	>98	12	55	1200x800x1800	1100
200-15/35	+15/-35	200	260-460	444	400	289	>98	12	55	1200x800x1800	1200
250-15/35	+15/-35	250	260-460	555	400	361	>98	12	52	1800x800x2000	1450
320-15/35	+15/-35	320	260-460	711	400	462	>98	12	52	1800x800x2000	1700
400-15/35	+15/-35	400	260-460	888	400	577	>98	12	63	2400x1000x2000	2300
500-15/35	+15/-35	500	260-460	1110	400	722	>98	15	63	2400x1000x2000	2600
630-15/35	+15/-35	630	260-460	1399	400	909	>98	15	64	3000x1000x2000	2900
800-15/35	+15/-35	800	260-460	1777	400	1155	>98	15	79	3000x1000x2200	3400

The values listed in the table are referred to 400V nominal voltage

Orion plus +15%/-45%											
30-15/45	+15/-45	30	220-460	79	400	43	>98	8	51	600x800x1800	470
45-15/45	+15/-45	45	220-460	118	400	65	>98	8	51	600x800x1800	550
60-15/45	+15/-45	60	220-460	157	400	87	>98	8	51	600x800x1800	600
80-15/45	+15/-45	80	220-460	210	400	115	>98	10	68	800x1000x2000	900
105-15/45	+15/-45	105	220-460	276	400	152	>98	10	68	800x1000x2000	1000
135-15/45	+15/-45	135	220-460	354	400	195	>98	10	55	1200x800x1800	1100
160-15/45	+15/-45	160	220-460	420	400	231	>98	10	55	1200x800x1800	1200
200-15/45	+15/-45	200	220-460	525	400	289	>98	10	52	1800x800x2000	1450
250-15/45	+15/-45	250	220-460	656	400	361	>98	10	52	1800x800x2000	1700
320-15/45	+15/-45	320	220-460	840	400	462	>98	10	63	2400x1000x2000	2300
400-15/45	+15/-45	400	220-460	1050	400	577	>98	12	63	2400x1000x2000	2700
500-15/45	+15/-45	500	220-460	1312	400	722	>98	12	64	3000x1000x2000	2900
630-15/45	+15/-45	630	220-460	1653	400	909	>98	12	79	3000x1000x2200	3400

The values listed in the table are referred to 400V nominal voltage

SIRIUS

THREE-PHASE
60-6000kVA

Standard features

Voltage stabilisation	Independent phase control
Output voltage selectable via display, PC and/or Ethernet*	from 210V to 255V (L-N) from 360V to 440V (L-L)
Output voltage accuracy	±0,5%
Frequency	50Hz ±5% or 60Hz ±5%
Admitted load variation	Up to 100%
Admitted load imbalance	100%
Cooling	Natural ventilation (from 35°C aided with fans)
Ambient temperature	-25/+45°C
Storage temperature	-25/+60°C
Max relative humidity	<95% (non condensing)
Admitted overload	200% 2min.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP 21
User interface	10" touch panel (multilingual) remotely available via VNC
Installation	Indoor
Regulator overload protection	Digital control
Communication system	Ethernet / USB / MODBUS
Overvoltage protection	• Class I input surge arrestors • Class II output surge arrestors • Optimal voltage return through supercapacitors in case of black-out

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

Ratings in relation to the input variation percentage

±10%	±15%	±20%	±25%	±30%	+15/-35%	+15/-45%
200	125	100	80	60	80	60
250	160	125	100	80	100	80
320	200	160	125	100	125	100
400	250	200	160	125	160	125
500	320	250	200	160	200	160
630	400	320	250	200	250	200
800	500	400	320	250	320	250
1000	630	500	400	320	400	320
1250	800	630	500	400	500	400
1600	1000	800	630	500	630	500
2000	1250	1000	800	630	800	630
2500	1600	1250	1000	800	1000	800
3200	2000	1600	1250	1000	1250	1000
4000	2500	2000	1600	1250	1600	1250
5000	3200	2500	2000	1600	2000	1600
6000	4000	3200	2500	2000	2500	2000

CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 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 not hold therefore any contractual value.

Accessories

Interrupting devices
Load protection against over/undervoltage
Manual by-pass line
Total protection kit
Input isolating transformer
Integrated automatic power factor correction system
EMI/RFI filters
Neutral point reactor
Up to IP55 protection degree for indoor and outdoor installation
Ortea Cloud monitoring

Sirius stabilisers are available for different ranges of input voltage fluctuation. In the ±15%/ ±20% and ±25%/ ±30% types, the change of input range is obtained through different internal connections (only up to 2000kVA ±15% and equivalent).
Sirius stabilisers are equipped with columnar voltage regulators which enable the achievement of high ratings (up to 6000kVA) and a solid and reliable construction, thus meeting the most diverse industrial applications.
The Sirius voltage stabilisers regulate the output voltage independently on each phase. Similarly to the other models, they can supply any single-phase, bi-phase and three-phase load even in case of and up to 100% unbalanced load current and asymmetrical mains distribution.
In any case, the presence of the neutral wire is required. The stabiliser can also operate without neutral wire by adding a device able to generate it (D/zn or D /yn isolating transformer or neutral point reactor).
The stabilisers are cooled via natural air ventilation, assisted by extracting fans when the cabinet internal temperature exceeds 35°C.
The user interface consists of a multilingual 10" touch panel (fitted with RS485 port) able to provide with information regarding the status of the lines upstream and downstream the voltage stabiliser (phase and linked voltages, current, power factor, active power, apparent power, reactive power, etc.), the operating status of the stabiliser displaying all the information regarding each phase operating mode ('power on'; reaching of voltage regulation limits; increase/decrease of voltage regulation, etc.) and the possible alarms (minimum and maximum voltage, maximum current, overtemperature, etc.).
The alarm indicators are accompanied by an acoustic alarm.
The display is remotable using VNC software.
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 also provided with two USB ports for downloading stored data and uploading new releases of the control card software.
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 is managed by two DSP microprocessors (one performing the control and the other one managing the

WIDE RANGE

Symmetrical: +10%, ±15%, ±20%, ±25%, ±30% (other on request).
Asyimmetrical: +15%/-35%, +15%/-45% (other on request).

Output voltage accuracy: ±0.5%.

TECHNOLOGY

Control and stabilisation, performed on the true RMS value, are based on two two-way DSP-microprocessor operating with a software specifically developed by Ortea (Starcontrol division) and under the supervision provided by a third microprocessor (bodyguard).
Parameters and reference voltage can be set via a PC, thus allowing for solving any problems related to voltage stability directly in the field.
Independent regulation on each phase.

LONG LIFE

Ortea system voltage regulator with rollers (without brushes, which are subject to heavy wear & tear).
Columnar voltage regulator make possible to achieve high ratings (up to 6000kVA) and a solid and reliable construction.

PROTECTION

The stabiliser is provided of an electronic voltage regulator protection system activates in case of overload on the voltage regulator. In such conditions, the load supply is not interrupted.
The auxiliary circuit is protected by fuses.

PROTECTION

Overvoltage protection:
- Class I input surge arrestor.
- Class II output surge arrestor.

PROTECTION

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

USER INTERFACE

Multilingual 10" touch panel fitted with RS485 port (linked and phase voltage current, frequency, power factor, active power, reactive power, apparent power etc.).
The touch panel also displaying all the information regarding each phase operating mode ('power on'; reaching of voltage regulation limits; increase/decrease of voltage regulation, etc.) and the possible alarms (minimum and maximum voltage, maximum current, overtemperature, etc.).

ORTEA CLOUD

The operating status of the stabiliser can also be easily monitored via web through the Ortea Cloud platform.
The dashboard intuitively displays all information, parameters and any alarms.
Ortea Cloud is available as an accessory.

measurements) which obtain the output voltage stabilisation by adjusting its true RMS value.
The whole system is supervised by a third 'bodyguard' microprocessor that controls the correct functioning of the other microprocessors.
The unit parameters and reference output voltage value can be set via a PC connection, allowing for promptly dealing in the field with any issues concerning voltage stability.
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.

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Sirius ±10%											
200-10	±10	200	360-440	321	400	289	>98	30	54	600x800x2000	600
250-10	±10	250	360-440	401	400	361	>98	30	42	800x800x2000	670
320-10	±10	320	360-440	513	400	462	>98	30	42	800x800x2000	720
400-10	±10	400	360-440	642	400	577	>98	30	42	800x800x2000	800
500-10	±10	500	360-440	802	400	722	>98	30	55	1200x800x1800	850
630-10	±10	W630	360-440	1010	400	909	>98	30	55	1200x800x1800	1100
800-10	±10	800	360-440	1283	400	1155	>98	30	53	1200x800x2000	1300
1000-10	±10	1000	360-440	1604	400	1443	>98	30	62	1800x1000x2000	1530
1250-10	±10	1250	360-440	2005	400	1804	>98	36	62	1800x1000x2000	1900
1600-10	±10	1600	360-440	2566	400	2312	>98	36	63	2400x1000x2000	2400
2000-10	±10	2000	360-440	3208	400	2887	>98	36	78	2400x1000x2200	2650
2500-10	±10	2500	360-440	4009	400	3609	>98	36	70	3600x1000x2100	3500
3200-10	±10	3200	360-440	5132	400	4619	>98	36	70	3600x1000x2100	4100
4000-10	±10	4000	360-440	6415	400	5774	>98	45	80	3600x1400x2200	5250
5000-10	±10	5000	360-440	8019	400	7217	>98	45	80	3600x1400x2200	6050
6000-10	±10	6000	360-440	9623	400	8661	>98	54	90	4200x2000x2400	10000

The values listed in the table are referred to 400V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Sirius ±20%/±15%											
100-20	±20	100	320-480	180	400	144	>98	15	54	600x800x2000	600
125-15	±15	125	340-460	212	400	180	>98	20	54	600x800x2000	600
125-20	±20	125	320-480	226	400	180	>98	15	42	800x800x2000	670
160-15	±15	160	340-460	272	400	231	>98	20	42	800x800x2000	670
160-20	±20	160	320-480	289	400	231	>98	15	42	800x800x2000	720
200-15	±15	200	340-460	340	400	289	>98	20	42	800x800x2000	720
200-20	±20	200	320-480	361	400	289	>98	15	42	800x800x2000	800
250-15	±15	250	340-460	425	400	361	>98	20	42	800x800x2000	800
250-20	±20	250	320-480	451	400	361	>98	15	55	1200x800x1800	850
320-15	±15	320	340-460	543	400	462	>98	20	55	1200x800x1800	850
320-20	±20	320	320-480	577	400	462	>98	15	55	1200x800x1800	1100
400-15	±15	400	340-460	679	400	577	>98	20	55	1200x800x1800	1100
400-20	±20	400	320-480	722	400	577	>98	15	53	1200x800x2000	1300
500-15	±15	500	340-460	849	400	722	>98	20	53	1200x800x2000	1300
500-20	±20	500	320-480	902	400	722	>98	15	62	1800x1000x2000	1530
630-15	±15	630	340-460	1070	400	909	>98	20	62	1800x1000x2000	1530
630-20	±20	630	320-480	1137	400	909	>98	18	62	1800x1000x2000	1900
800-15	±15	800	340-460	1359	400	1155	>98	24	62	1800x1000x2000	1900
800-20	±20	800	320-480	1443	400	1155	>98	18	63	2400x1000x2000	2400
1000-15	±15	1000	340-460	1698	400	1443	>98	24	63	2400x1000x2000	2400
1000-20	±20	1000	320-480	1804	400	1443	>98	18	78	2400x1000x2200	2630
1250-15	±15	1250	340-460	2123	400	1804	>98	24	78	2400x1000x2200	2630
1250-20	±20	1250	320-480	2255	400	1804	>98	18	70	3600x1000x2100	3500
1600-15	±15	1600	340-460	2717	400	2309	>98	24	70	3600x1000x2100	3500
1600-20	±20	1600	320-480	2887	400	2309	>98	18	70	3600x1000x2100	4150
2000-15	±15	2000	340-460	3396	400	2887	>98	24	70	3600x1000x2100	4150
2000-20	±20	2000	320-480	3609	400	2887	>98	22	80	3600x1400x2200	5250
2500-15	±15	2500	340-460	4245	400	3609	>98	30	80	3600x1400x2200	5250
2500-20	±20	2500	320-480	4511	400	3609	>98	22	80	3600x1400x2200	6050
3200-15	±15	3200	340-460	5434	400	4619	>98	30	80	3600x1400x2200	6050
3200-20	±20	3200	320-480	5774	400	4619	>98	27	90	4200x2000x2400	10000
4000-15	±15	4000	340-460	6793	400	5774	>98	36	90	4200x2000x2400	10000

The values listed in the table are referred to 400V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Sirius ±30%/±25%											
60-30	±30	60	280-520	124	400	87	>98	10	54	600x800x2000	600
80-25	±25	80	300-500	154	400	115	>98	12	54	600x800x2000	600
80-30	±30	80	280-520	165	400	115	>98	10	42	800x800x2000	670
100-25	±25	100	300-500	192	400	144	>98	12	42	800x800x2000	670
100-30	±30	100	280-520	206	400	144	>98	10	42	800x800x2000	720
125-25	±25	125	300-500	241	400	180	>98	12	42	800x800x2000	720
125-30	±30	125	280-520	258	400	180	>98	10	42	800x800x2000	800
160-25	±25	160	300-500	308	400	231	>98	12	42	800x800x2000	800
160-30	±30	160	280-520	330	400	231	>98	10	55	1200x800x1800	850
200-25	±25	200	300-500	385	400	289	>98	12	55	1200x800x1800	850
200-30	±30	200	280-520	412	400	289	>98	10	55	1200x800x1800	1100
250-25	±25	250	300-500	481	400	361	>98	12	55	1200x800x1800	1100
250-30	±30	250	280-520	516	400	361	>98	10	53	1200x800x2000	1300
320-25	±25	320	300-500	616	400	462	>98	12	53	1200x800x2000	1300
320-30	±30	320	280-520	660	400	462	>98	10	62	1800x1000x2000	1530
400-25	±25	400	300-500	770	400	577	>98	12	62	1800x1000x2000	1530
400-30	±30	400	280-520	825	400	577	>98	12	62	1800x1000x2000	1900
500-25	±25	500	300-500	962	400	722	>98	15	62	1800x1000x2000	1900
500-30	±30	500	280-520	1031	400	722	>98	12	63	2400x1000x2000	2400
630-25	±25	630	300-500	1212	400	909	>98	15	63	2400x1000x2000	2400
630-30	±30	630	280-520	1299	400	909	>98	12	78	2400x1000x2200	2630
800-25	±25	800	300-500	1540	400	1155	>98	15	78	2400x1000x2200	2630
800-30	±30	800	280-520	1650	400	1155	>98	12	70	3600x1000x2100	3500
1000-25	±25	1000	300-500	1925	400	1443	>98	15	70	3600x1000x2100	3500
1000-30	±30	1000	280-520	2062	400	1443	>98	12	70	3600x1000x2100	4150
1250-25	±25	1250	300-500	2406	400	1804	>98	15	70	3600x1000x2100	4150
1250-30	±30	1250	280-520	2578	400	1804	>98	15	80	3600x1400x2200	5250
1600-25	±25	1600	300-500	3079	400	2309	>98	18	80	3600x1400x2200	5250
1600-30	±30	1600	280-520	3299	400	2309	>98	15	80	3600x1400x2200	6050
2000-25	±25	2000	300-500	3849	400	2887	>98	18	80	3600x1400x2200	6050
2000-30	±30	2000	280-520	4124	400	2887	>98	18	90	4200x2000x2400	10000
2500-25	±25	2500	300-500	4811	400	3609	>98	22	90	4200x2000x2400	10000

The values listed in the table are referred to 400V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Sirius +15%/-35%											
80-15/35	+15/-35	80	260-460	178	400	115	>98	12	54	600x800x2000	720
100-15/35	+15/-35	100	260-460	222	400	144	>98	12	68	800x1000x2000	800
125-15/35	+15/-35	125	260-460	278	400	180	>98	12	68	800x1000x2000	930
160-15/35	+15/-35	160	260-460	355	400	231	>98	12	68	800x1000x2000	1000
200-15/35	+15/-35	200	260-460	444	400	289	>98	12	55	1200x800x1800	1050
250-15/35	+15/-35	250	260-460	555	400	361	>98	12	52	1800x800x2000	1500
320-15/35	+15/-35	320	260-460	711	400	462	>98	12	52	1800x800x2000	1800
400-15/35	+15/-35	400	260-460	888	400	577	>98	12	63	2400x1000x2000	2100
500-15/35	+15/-35	500	260-460	1110	400	722	>98	15	63	2400x1000x2000	2600
630-15/35	+15/-35	630	260-460	1399	400	909	>98	15	64	3000x1000x2000	2950
800-15/35	+15/-35	800	260-460	1777	400	1155	>98	15	79	3000x1000x2200	3450
1000-15/35	+15/-35	1000	260-460	2221	400	1443	>98	15	70	3600x1000x2100	3950
1250-15/35	+15/-35	1250	260-460	2776	400	1804	>98	15	72	4800x1000x2100	4600
1600-15/35	+15/-35	1600	260-460	3553	400	2309	>98	18	82	4800x1400x2200	7000
2000-15/35	+15/-35	2000	260-460	4441	400	2887	>98	18	82	4800x1400x2200	8850
2500-15/35	+15/-35	2500	260-460	5552	400	3609	>98	22	92	6000x2000x2400	12500

The values listed in the table are referred to 400V nominal voltage

Sirius +15%/-45%											
60-15/45	+15/-45	60	220-460	157	400	87	>98	10	54	600x800x2000	800
80-15/45	+15/-45	80	220-460	210	400	115	>98	10	68	800x1000x2000	900
100-15/45	+15/-45	100	220-460	262	400	144	>98	10	68	800x1000x2000	1070
125-15/45	+15/-45	125	220-460	328	400	180	>98	10	68	800x1000x2000	1100
160-15/45	+15/-45	160	220-460	420	400	231	>98	10	55	1200x800x1800	1200
200-15/45	+15/-45	200	220-460	525	400	289	>98	10	52	1800x800x2000	1700
250-15/45	+15/-45	250	220-460	656	400	361	>98	10	52	1800x800x2000	2000
320-15/45	+15/-45	320	220-460	840	400	462	>98	10	63	2400x1000x2000	2300
400-15/45	+15/-45	400	220-460	1050	400	577	>98	12	63	2400x1000x2000	2600
500-15/45	+15/-45	500	220-460	1312	400	722	>98	12	64	3000x1000x2000	3050
630-15/45	+15/-45	630	220-460	1653	400	909	>98	12	79	3000x1000x2200	3850
800-15/45	+15/-45	800	220-460	2100	400	1155	>98	12	70	3600x1000x2100	4400
1000-15/45	+15/-45	1000	220-460	2624	400	1443	>98	12	72	4800x1000x2100	5100
1250-15/45	+15/-45	1250	220-460	3280	400	1804	>98	15	82	4800x1400x2200	8000
1600-15/45	+15/-45	1600	220-460	4199	400	2309	>98	15	82	4800x1400x2200	8900
2000-15/45	+15/-45	2000	220-460	5249	400	2887	>98	18	92	6000x2000x2400	14000

The values listed in the table are referred to 400V nominal voltage

SIRIUS ADVANCE

THREE-PHASE
60-4000kVA

Standard features

Voltage stabilisation	Independent phase control
Output voltage selectable via display, PC and/or Ethernet*	from 210V to 255V (L-N) from 360V to 440V (L-L)
Output voltage accuracy	±0,5%
Frequency	50Hz ±5% or 60Hz ±5%
Admitted load variation	Up to 100%
Admitted load imbalance	100%
Cooling	Natural ventilation From 35°C aided with fans
Ambient temperature	-25/+45°C
Storage temperature	-25/+60°C
Max relative humidity	<95% (non condensing)
Admitted overload	200% 2min.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP 21
User interface	• 10" touch panel (multilingual) remotely available via VNC • Reactive power regulator
Installation	Indoor
Regulator overload protection	Digital control
Communication system	Ethernet / USB / MODBUS
Overvoltage protection	• Class I input surge arrestors • Class II output surge arrestors • Optimal voltage return through supercapacitors in case of black-out
Full protection and by-pass kit	• Input automatic circuit breaker • By-pass switch made of an interlocked automatic circuit breaker • Output interlocked motorized automatic circuit breaker with protection against overload, overvoltage, undervoltage, phase sequence error and phase failure
Integrated PFC automatic system	• Based on high-energy density metallized polypropylene three-phase capacitors (Un = 525V) • Three-phase blocking reactor (tuning frequency 180Hz)"

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 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 not hold therefore any contractual value.

Ratings in relation to the input variation percentage

±15%	±20%	±25%	±30%
125	100	80	60
160	125	100	80
200	160	125	100
250	200	160	125
320	250	200	160
400	320	250	200
500	400	320	250
630	500	400	320
800	630	500	400
1000	800	630	500
1250	1000	800	630
1600	1250	1000	800
2000	1600	1250	1000
2500	2000	1600	1250
3200	2500	2000	1600
4000	3200	2500	2000

Accessories

Input isolating transformer

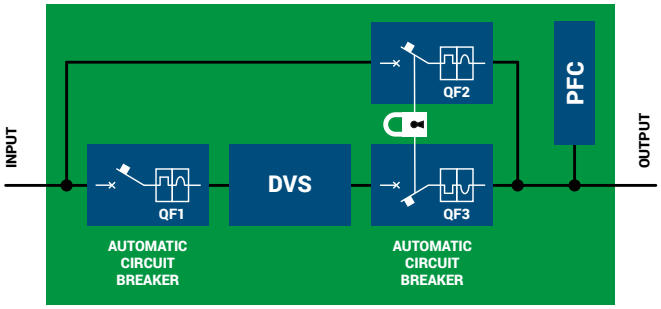
EMI/RFI filters

Neutral point reactor

Up to IP55 protection degree for indoor and outdoor installation

Sirius Advance voltage stabilisers derive from the SIRIUS type, of which they maintain the main technical characteristics. The standard integration of some functions and accessories usually offered as optional, complete and enrich the equipment.
The additional features are:

- Input automatic circuit breaker.
- Bypass switch via an interlocked automatic circuit breaker.
- Output interlocked motorized automatic circuit breaker;
- Integrated automatic power factor correction system.



WIDE RANGE

±15%, ±20%, ±25%, ±30% (other on request).
Output voltage accuracy: ±0.5%.

TECHNOLOGY

Control and stabilisation, performed on the true RMS value, are based on two two-way DSP-microprocessor operating with a software specifically developed by Ortea (Starcontrol division) and under the supervision provided by a third microprocessor (bodyguard).
Parameters and reference voltage can be set via a PC, thus allowing for solving any problems related to voltage stability directly in the field.
Independent regulation on each phase.

LONG LIFE

Ortea system voltage regulator with rollers (without brushes, which are subject to heavy wear & tear).
Columnar voltage regulator make possible to achieve high ratings (up to 6000kVA) and a solid and reliable construction.

PROTECTION

The stabiliser is provided of an electronic voltage regulator protection system activates in case of overload on the voltage regulator. In such conditions, the load supply is not interrupted.
The auxiliary circuit is protected by fuses.

PROTECTION

Overvoltage protection:

- Class I input surge arrestor.
- Class II output surge arrestor.

PROTECTION

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

PROTECTION

Total protection by-pass kit:

- Input automatic circuit breaker.
- By-pass automatic circuit breaker.
- Output motorized automatic circuit breaker.

USER INTERFACE

Multilingual 10” touch panel fitted with RS485 port (linked and phase voltage current, frequency, power factor, active power, reactive power, apparent power etc.). The touch panel also displaying all the information regarding each phase operating mode (‘power on’; reaching of voltage regulation limits; increase/ decrease of voltage regulation, etc.) and the possible alarms (minimum and maximum voltage, maximum current, overtemperature, etc.). The display is remotable using VNC software.

POWER FACTOR CORRECTION

The PFC system exploits high energy density metallized polypropylene three-phase capacitors (Un = 525V) exclusively thus guaranteeing robustness and reliability.
The addition of blocking reactors (detuned filters) eliminates undesired harmonics and protects the capacitors.

The reactive power regulator RPC are designed to provide the desired power factor while minimizing the wearing on the banks of capacitors, accurate and reliable in measuring and control functions are simple and intuitive in installation and construction.

The input automatic circuit breaker (QF1) ensures protection against failure and/or short-circuits inside the unit.
The bypass automatic circuit breaker (QF2) protects the line supplying the load against overload and shortcircuits in bypass condition.
The output motorized automatic circuit breaker (QF3), interlocked with the bypass switch, protects against overload, short-circuit, overvoltage, undervoltage, phase sequence error and phase failure.
The integrated automatic Power Factor Correction system maintains the power factor value (cos φ) to a high level ensuring the known advantages for the users but also affecting the sizing of the stabiliser.
The PFC system exploits high energy density metallised polypropylene three-phase capacitors (Un=525V) exclusively thus guaranteeing robustness and reliability. The addition of blocking reactors (detuned filters) eliminates undesired harmonics and protects the capacitors. The reactive power controller is mounted on the external control synoptic panel.

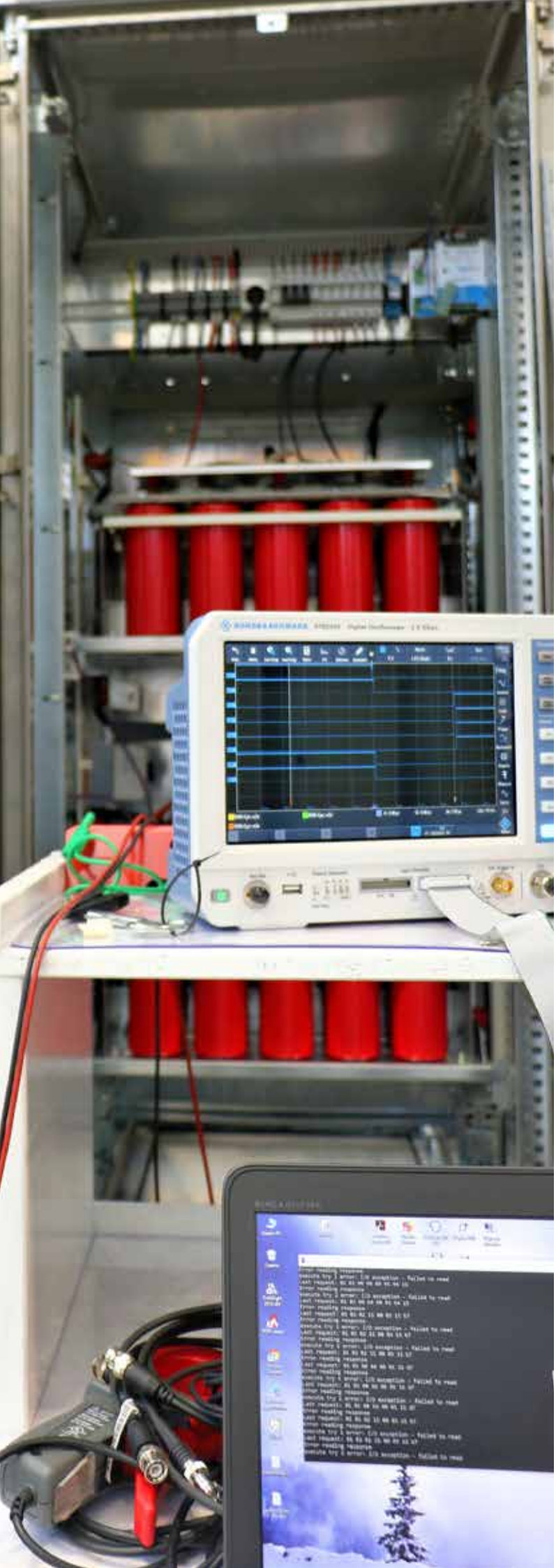
Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Sirius advance ±20%/±15%											
100-20	±20	100	320-480	180	400	144	>98	15	47	1600x800x1800	830
125-15	±15	125	340-460	212	400	180	>98	20	47	1600x800x1800	830
125-20	±20	125	320-480	226	400	180	>98	15	47	1600x800x1800	900
160-15	±15	160	340-460	272	400	231	>98	20	47	1600x800x1800	900
160-20	±20	160	320-480	289	400	231	>98	15	48	2200x800x1800	970
200-15	±15	200	340-460	340	400	289	>98	20	48	2200x800x1800	970
200-20	±20	200	320-480	361	400	289	>98	15	48	2200x800x1800	1070
250-15	±15	250	340-460	425	400	361	>98	20	48	2200x800x1800	1070
250-20	±20	250	320-480	451	400	361	>98	15	48	2200x800x1800	1250
320-15	±15	320	340-460	543	400	462	>98	20	48	2200x800x1800	1250
320-20	±20	320	320-480	577	400	462	>98	15	50	2400x800x1800	1500
400-15	±15	400	340-460	679	400	577	>98	20	50	2400x800x1800	1500
400-20	±20	400	320-480	722	400	577	>98	15	57	2400x800x2000	1880
500-15	±15	500	340-460	849	400	722	>98	20	57	2400x800x2000	1880
500-20	±20	500	320-480	902	400	722	>98	15	64	3000x1000x2000	2200
630-15	±15	630	340-460	1070	400	909	>98	20	64	3000x1000x2000	2200
630-20	±20	630	320-480	1137	400	909	>98	18	70	3600x1000x2100	2720
800-15	±15	800	340-460	1359	400	1155	>98	24	70	3600x1000x2100	2720
800-20	±20	800	320-480	1443	400	1155	>98	18	72	4800x1000x2100	2950
1000-15	±15	1000	340-460	1698	400	1443	>98	24	72	4800x1000x2100	2950
1000-20	±20	1000	320-480	1804	400	1443	>98	18	73	5400x1000x2100	4240
1250-15	±15	1250	340-460	2123	400	1804	>98	24	73	5400x1000x2100	4240
1250-20	±20	1250	320-480	2255	400	1804	>98	18	74	6000x1000x2100	5000
1600-15	±15	1600	340-460	2717	400	2309	>98	24	74	6000x1000x2100	5000
1600-20	±20	1600	320-480	2887	400	2309	>98	18	75	6600x1000x2100	5800
2000-15	±15	2000	340-460	3396	400	2887	>98	24	75	6600x1000x2100	5800
2000-20	±20	2000	320-480	3609	400	2887	>98	22	85	6600x1400x2200	7100
2500-15	±15	2500	340-460	4245	400	3609	>98	30	88	7000x1400x2200	7100
2500-20	±20	2500	320-480	4511	400	3609	>98	22	88	7000x1400x2200	8350
3200-15	±15	3200	340-460	5434	400	4619	>98	30	89	8000x1400x2200	8350
3200-20	±20	3200	320-480	5774	400	4619	>98	27	96	8600x2000x2400	11800
4000-15	±15	4000	340-460	6793	400	5774	>98	36	96	8600x2000x2400	11800

The values listed in the table are referred to 400V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Adjus. speed	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]		[mm]	[kg]
Sirius advance ±30%/±25%											
60-30	±30	60	280-520	124	400	87	>98	10	47	1600x800x1800	830
80-25	±25	80	300-500	154	400	115	>98	12	47	1600x800x1800	830
80-30	±30	80	280-520	165	400	115	>98	10	52	1800x800x2000	900
100-25	±25	100	300-500	192	400	144	>98	12	52	1800x800x2000	900
100-30	±30	100	280-520	206	400	144	>98	10	52	1800x800x2000	970
125-25	±25	125	300-500	241	400	180	>98	12	52	1800x800x2000	970
125-30	±30	125	280-520	258	400	180	>98	10	52	1800x800x2000	1070
160-25	±25	160	300-500	308	400	231	>98	12	52	1800x800x2000	1070
160-30	±30	160	280-520	330	400	231	>98	10	48	2200x800x1800	1250
200-25	±25	200	300-500	385	400	289	>98	12	48	2200x800x1800	1250
200-30	±30	200	280-520	412	400	289	>98	10	48	2200x800x1800	1500
250-25	±25	250	300-500	481	400	361	>98	12	48	2200x800x1800	1500
250-30	±30	250	280-520	516	400	361	>98	10	48	2200x800x1800	1880
320-25	±25	320	300-500	616	400	462	>98	12	48	2200x800x1800	1880
320-30	±30	320	280-520	660	400	462	>98	10	64	3000x1000x2000	2200
400-25	±25	400	300-500	770	400	577	>98	12	64	3000x1000x2000	2200
400-30	±30	400	280-520	825	400	577	>98	12	64	3000x1000x2000	2720
500-25	±25	500	300-500	962	400	722	>98	15	64	3000x1000x2000	2720
500-30	±30	500	280-520	1031	400	722	>98	12	70	3600x1000x2100	2950
630-25	±25	630	300-500	1212	400	909	>98	15	70	3600x1000x2100	2950
630-30	±30	630	280-520	1299	400	909	>98	12	72	4800x1000x2100	4240
800-25	±25	800	300-500	1540	400	1155	>98	15	72	4800x1000x2100	4240
800-30	±30	800	280-520	1650	400	1155	>98	12	74	6000x1000x2100	5000
1000-25	±25	1000	300-500	1925	400	1443	>98	15	74	6000x1000x2100	5000
1000-30	±30	1000	280-520	2062	400	1443	>98	12	74	6000x1000x2100	5800
1250-25	±25	1250	300-500	2406	400	1804	>98	15	74	6000x1000x2100	5800
1250-30	±30	1250	280-520	2578	400	1804	>98	15	84	6000x1400x2200	7100
1600-25	±25	1600	300-500	3079	400	2309	>98	18	84	6000x1400x2200	7100
1600-30	±30	1600	280-520	3299	400	2309	>98	15	84	6000x1400x2200	8350
2000-25	±25	2000	300-500	3849	400	2887	>98	18	85	6600x1400x2200	8350
2000-30	±30	2000	280-520	4124	400	2887	>98	18	94	7600x2000x2400	11800
2500-25	±25	2500	300-500	4811	400	3609	>98	22	94	7600x2000x2400	11800

The values listed in the table are referred to 400V nominal voltage

STATIC DIGITAL VOLTAGE STABILISERS

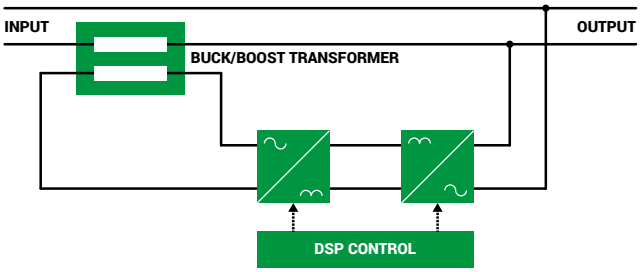


DESIGN CRITERIA

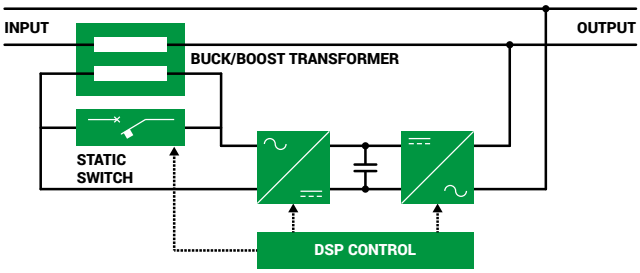
A voltage stabiliser is a power device destined to be positioned between the mains and the User. The purpose is to ensure that the User is fed a voltage subject to a variation much lower that the one guaranteed by the distributing system.

The static stabiliser is used when the correction speed is the critical issue to be dealt with (for example, computers, laboratory equipment, measuring benches and medical instrumentation).

WORKING PRINCIPLE OF A STATIC DIGITAL VOLTAGE STABILISER GEMINI / AQUARIUS



WORKING PRINCIPLE OF A STATIC DIGITAL VOLTAGE STABILISER ODYSSEY



The stabilization, performed on the “true rms” voltage, is not affected by the load power factor (cos φ) and is achieved independently from the load percentage.
A static voltage stabiliser is fundamentally made of a buck/boost transformer and an IGBT-based conversion unit managing regulation, control, measurement and alarms.
The operating principle is similar to the one described for the electro-mechanical stabilisers, the difference being that the voltage compensation on the buck/boost primary winding is performed by an electronic board through IGBT static switches instead of the autotransformer with variable transformer ratio.
The board receives the supply voltage as an input and provides with an output voltage that is variable in terms of amplitude and phase (in phase or in opposition to the input). Value and phase are such that, when suitably added to the mains voltage via the buck/boost transformer, they result in having an output voltage stabilized to the desired value.
The buck/boost transformer is supplied a sine-wave in

phase or in opposition depending on whether an addition or a subtraction of voltage is necessary. The amplitude is chosen automatically by the software.
The system is also provided with filters to eliminate interference between the mains and the control board.

The compensating procedure response time can be measured in milliseconds.
The stabilisers are designed and built in compliance with the European Directives concerning CE marking (Low Voltage and Electromagnetic Compatibility Directives).

MAIN COMPONENTS

1. Buck/boost transformer

Often referred to as 'booster' transformer, it is a standard dry-type transformer with the secondary winding connected in series to the mains and the primary winding supplied by the voltage regulator.

2. Conversion unit

AC/DC rectifier: it converts the phase to neutral voltage of the AC mains into DC voltage by means of a fullycontrolled IGBT bridge. The rectifier is sized in order to supply the inverter at full load.
DC/AC inverter: it converts the DC voltage coming from the rectifier into AC voltage, stabilised in amplitude.
The inverter uses the same IGBT technology as the rectifier.

3. Electronic control

IGBT microcontroller-based electronic control boards running the system in terms of regulation and alarm management. They compare the output voltage value to the set one: if a difference is detected, they generate the compensation necessary to bring back the output voltage to the nominal value (provided that said difference falls in the working range).

RANGE

GEMINI	Single-phase	**4-40kVA**
AQUARIUS	Three-phase	**10-120kVA**
ODYSSEY	Three-phase	**80-4000kVA**

GEMINI
GEMINI PLUS

SINGLE-PHASE
4-40kVA

Standard features

	Gemini	Gemini plus
Voltage regulation	IGBT controlled	
Selectable output voltage*	220-230-240V	
Output voltage accuracy	±0.5%	
Frequency	50Hz ±5% or 60Hz ±5%	
Admitted load variation	Up to 100%	
Cooling	Forced ventilation	
Ambient temperature	-25/+45°C	
Storage temperature	-25/+60°C	
Max relative humidity	<95% (non condensing)	
Admitted overload	150% 2sec.	
Colour	RAL 9005	
Protection degree	IP 21	
Instrumentation	Output digital voltmetre	
Installation	Indoor	
Overvoltage protection	Output class II surge arrestors	
Protection	• EMI/RFI filters • Automatic by-pass protection	• EMI/RFI filters • Input circuit breaker • Protection by-pass (automatic) • Maintenance by-pass (manual)

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

Ratings in relation to the input variation percentage

±15%	±20%	±25%	±30%
10	7	5	4
15	10	7	5
20	15	10	7
30	20	15	10
40	30	20	15

Accessories

Interrupting devices

Load protection against over/undervoltage

Input isolating transformer

Up to IP55 protection degree for indoor and outdoor installation

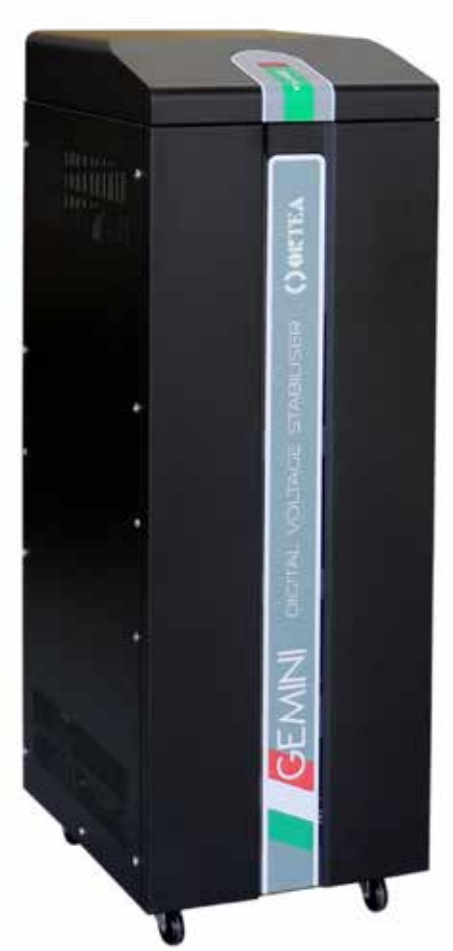
CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 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 not hold therefore any contractual value.

The Gemini series identifies the single-phase static stabilisers and is available in two configurations:

- **Gemini**. Base version fitted with class II output SPD, EMI/RFI filter and automatic bypass.
- **Gemini Plus**. Advanced version which in addition to the protections included in the base version, offers also input circuit breaker and manual maintenance bypass device.

Standard units cover a wide power range and offer a double input connection so that with the same unit two different input variations (±15%/±20% or ±25%/±30%) can be dealt with.
These percentages cover most of the common necessities, but different values can be requested.
The control unit (basically a single-phase inverter that generates the voltage destined to the series buck/boost transformer) is specifically designed for the static stabiliser.
The board manages voltage regulation, measurement of the electrical parameters and alarms.
A digital display on the front panel shows the output voltage and the alarm code (min/max output voltage, internal overheating, overload, shortcircuit, bypass status, etc.).



WIDE RANGE

±15%, ±20%, ±25%, ±30% .
Output voltage accuracy: ±0.5%.

TECHNOLOGY

IGBT-based control logic supported by a software specifically developed by Ortea (Starcontrol division).

SPEED

Response time: ≤10 milliseconds.

PROTECTION

The system is protected by EMI / RFI noise filters, class II output surge arrestors and automatic by-pass in case of internal failure.
In the Plus version, the protection is increased by the presence of an input switch and a maintenance by-pass.

INSTRUMENTATION

A digital display providing with output voltage and alarm readings is fitted on the front panel.

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Correction time	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]			[mm]	[kg]
Gemini ±20%/±15%											
ES7-20	±20	7	184-276	38	230	30	>98	one cycle	13	300x560x300	30
ES10-15	±15	10	195-265	51	230	43	>98	one cycle	13	300x560x300	30
ES10-20	±20	10	184-276	54	230	43	>98	one cycle	13	300x560x300	35
ES15-15	±15	15	195-265	77	230	65	>98	one cycle	13	300x560x300	35
ES15-20	±20	15	184-276	82	230	65	>98	one cycle	22	410x530x1200	50
ES20-15	±15	20	195-265	103	230	87	>98	one cycle	22	410x530x1200	50
ES20-20	±20	20	184-276	109	230	87	>98	one cycle	23	410x680x1200	110
ES30-15	±15	30	195-265	154	230	130	>98	one cycle	23	410x680x1200	110
ES30-20	±20	30	184-276	163	230	130	>98	one cycle	23	410x680x1200	125
ES40-15	±15	40	195-265	205	230	174	>98	one cycle	23	410x680x1200	125

The values listed in the table are referred to 230V nominal voltage

Gemini ±30%/±25%											
ES4-30	±30	4	161-300	25	230	17	>98	one cycle	13	300x560x300	30
ES5-25	±25	5	172-288	29	230	22	>98	one cycle	13	300x560x300	30
ES5-30	±30	5	161-300	31	230	22	>98	one cycle	13	300x560x300	35
ES7-25	±25	7	172-288	41	230	30	>98	one cycle	13	300x560x300	35
ES7-30	±30	7	161-300	43	230	30	>98	one cycle	22	410x530x1200	50
ES10-25	±25	10	172-288	58	230	43	>98	one cycle	22	410x530x1200	50
ES10-30	±30	10	161-300	62	230	43	>98	one cycle	23	410x680x1200	110
ES15-25	±25	15	172-288	87	230	65	>98	one cycle	23	410x680x1200	110
ES15-30	±30	15	161-300	93	230	65	>98	one cycle	23	410x680x1200	125
ES20-25	±25	20	172-288	116	230	87	>98	one cycle	23	410x680x1200	125

The values listed in the table are referred to 230V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Correction time	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]			[mm]	[kg]
Gemini plus ±20%/±15%											
ESP7-20	±20	7	184-276	38	230	30	>98	one cycle	13	300x560x300	32
ESP10-15	±15	10	195-265	51	230	43	>98	one cycle	13	300x560x300	32
ESP10-20	±20	10	184-276	54	230	43	>98	one cycle	13	300x560x300	40
ESP15-15	±15	15	195-265	77	230	65	>98	one cycle	13	300x560x300	40
ESP15-20	±20	15	184-276	82	230	65	>98	one cycle	22	410x530x1200	57
ESP20-15	±15	20	195-265	103	230	87	>98	one cycle	22	410x530x1200	57
ESP20-20	±20	20	184-276	109	230	87	>98	one cycle	23	410x680x1200	120
ESP30-15	±15	30	195-265	154	230	130	>98	one cycle	23	410x680x1200	120
ESP30-20	±20	30	184-276	163	230	130	>98	one cycle	23	410x680x1200	135
ESP40-15	±15	40	195-265	205	230	174	>98	one cycle	23	410x680x1200	135

The values listed in the table are referred to 230V nominal voltage

Gemini plus ±30%/±25%											
ESP4-30	±30	4	161-300	25	230	17	>98	one cycle	13	300x560x300	32
ESP5-25	±25	5	172-288	29	230	22	>98	one cycle	13	300x560x300	32
ESP5-30	±30	5	161-300	31	230	22	>98	one cycle	13	300x560x300	40
ESP7-25	±25	7	172-288	41	230	30	>98	one cycle	13	300x560x300	40
ESP7-30	±30	7	161-300	43	230	30	>98	one cycle	22	410x530x1200	57
ESP10-25	±25	10	172-288	58	230	43	>98	one cycle	22	410x530x1200	57
ESP10-30	±30	10	161-300	62	230	43	>98	one cycle	23	410x680x1200	120
ESP15-25	±25	15	172-288	87	230	65	>98	one cycle	23	410x680x1200	120
ESP15-30	±30	15	161-300	93	230	65	>98	one cycle	23	410x680x1200	135
ESP20-25	±25	20	172-288	116	230	87	>98	one cycle	23	410x680x1200	135

The values listed in the table are referred to 230V nominal voltage

AQUARIUS
AQUARIUS PLUS

THREE-PHASE
10-120kVA

Standard features

	Aquarius	Aquarius plus
Voltage stabilisation	Independent phase control	
Voltage regulation	IGBT controlled	
Selectable output voltage*	220-230-240V (L-N) 380-400-415V (L-L)	
Output voltage accuracy	±0.5%	
Frequency	50Hz ±5% or 60Hz ±5%	
Admitted load variation	Up to 100%	
Cooling	Forced ventilation	
Ambient temperature	-25/+45°C	
Storage temperature	-25/+60°C	
Max relative humidity	<95% (non condensing)	
Admitted overload	150% 2sec	
Colour	RAL 9005	
Enclosure protection	IP 21	
Instrumentation	Output digital multimetre	
Installation	Indoor	
Overvoltage protection	Output class II surge arrestors	
Protection	• EMI/RFI filters • Protection by-pass (automatic)	• EMI/RFI filters • Input circuit breaker • Protection by-pass (automatic) • Maintenance by-pass (manual)

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

Ratings in relation to the input variation percentage

±15%	±20%	±25%	±30%
30	20	15	10
45	30	20	15
60	45	30	20
90	60	45	30
120	90	60	45

Accessories

- Interrupting devices
- Load protection against over/undervoltage
- Input isolating transformer
- Integrated automatic power factor correction system
- Neutral point reactor
- Up to IP55 protection degree for indoor and outdoor installation

CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 Standards.
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The Aquarius series identifies the three-phase static stabilisers and is available in two configurations:

- **Aquarius**. Base version fitted with class II output SPD, EMI/RFI filter and automatic bypass.
- **Aquarius Plus**. Advanced version which in addition to the protections included in the base version, offers also input circuit breaker and manual maintenance bypass device.

Standard units cover a wide power range and offer a double input connection so that with the same unit two different input variations (±15%/±20% or ±25%/±30%) can be dealt with.
These percentages cover most of the common necessities, but different values can be requested.
Each phase control unit (basically a single-phase inverter that generates the voltage destined to the series buck/boost transformer) is specifically designed for the static stabiliser. The board manages voltage regulation, measurement of the electrical parameters and alarms.

A front panel includes:

- A digital display for each phase indicating the output voltage and the alarm code (min/max output voltage, internal overheating, overload, shortcircuit, bypass status, etc.).
- A digital multimeter providing information regarding the voltage stabiliser output parametres, such as phase and linked voltage, current, power factor, active power, apparent power, reactive power, etc.

WIDE RANGE

±15%, ±20%, ±25%, ±30% .
Output voltage accuracy: ±0.5%.

TECHNOLOGY

IGBT-based control logic supported by a software specifically developed by Ortea (Starcontrol division).

SPEED

Response time: ≤10 milliseconds.

PROTECTION

The system is protected by EMI / RFI noise filters, class II output surge arrestors and automatic by-pass in case of internal failure.
In the Plus version, the protection is increased by the presence of an input switch and a maintenance by-pass.

INSTRUMENTATION

A digital display providing with output voltage and alarm readings for each phase is fitted on the front panel.
The digital multimeter provides for information about the output parameters.

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Correction time	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]			[mm]	[kg]
Aquarius ±20%/±15%											
ET20-20	±20	20	320-480	36	400	29	>98	one cycle	23	410x680x1200	120
ET30-15	±15	30	340-460	51	400	43	>98	one cycle	23	410x680x1200	120
ET30-20	±20	30	320-480	54	400	43	>98	one cycle	23	410x680x1200	160
ET45-15	±15	45	340-460	76	400	65	>98	one cycle	23	410x680x1200	160
ET45-20	±20	45	320-480	81	400	65	>98	one cycle	31	600x600x1600	200
ET60-15	±15	60	340-460	102	400	87	>98	one cycle	31	600x600x1600	200
ET60-20	±20	60	320-480	109	400	87	>98	one cycle	35	800x600x1800	370
ET90-15	±15	90	340-460	153	400	130	>98	one cycle	35	800x600x1800	370
ET90-20	±20	90	320-480	162	400	130	>98	one cycle	35	800x600x1800	390
ET120-15	±15	120	340-460	204	400	173	>98	one cycle	35	800x600x1800	390

The values listed in the table are referred to 400V nominal voltage

Aquarius ±30%/±25%											
ET10-30	±30	10	280-520	20	400	14	>98	one cycle	23	410x680x1200	120
ET15-25	±25	15	300-500	29	400	22	>98	one cycle	23	410x680x1200	120
ET15-30	±30	15	280-520	31	400	22	>98	one cycle	23	410x680x1200	160
ET20-25	±25	20	300-500	39	400	29	>98	one cycle	23	410x680x1200	160
ET20-30	±30	20	280-520	41	400	29	>98	one cycle	31	600x600x1600	200
ET30-25	±25	30	300-500	57	400	43	>98	one cycle	31	600x600x1600	200
ET30-30	±30	30	280-520	61	400	43	>98	one cycle	35	800x600x1800	370
ET45-25	±25	45	300-500	86	400	65	>98	one cycle	35	800x600x1800	370
ET45-30	±30	45	280-520	93	400	65	>98	one cycle	35	800x600x1800	390
ET60-25	±25	60	300-500	116	400	87	>98	one cycle	35	800x600x1800	390

The values listed in the table are referred to 400V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Correction time	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]			[mm]	[kg]
Aquarius plus ±20%/±15%											
ETP20-20	±20	20	320-480	36	400	29	>98	one cycle	23	410x680x1200	130
ETP30-15	±15	30	340-460	51	400	43	>98	one cycle	23	410x680x1200	130
ETP30-20	±20	30	320-480	54	400	43	>98	one cycle	23	410x680x1200	170
ETP45-15	±15	45	340-460	76	400	65	>98	one cycle	23	410x680x1200	170
ETP45-20	±20	45	320-480	81	400	65	>98	one cycle	31	600x600x1600	220
ETP60-15	±15	60	340-460	102	400	87	>98	one cycle	31	600x600x1600	220
ETP60-20	±20	60	320-480	109	400	87	>98	one cycle	35	800x600x1800	410
ETP90-15	±15	90	340-460	153	400	130	>98	one cycle	35	800x600x1800	410
ETP90-20	±20	90	320-480	162	400	130	>98	one cycle	35	800x600x1800	430
ETP120-15	±15	120	340-460	204	400	173	>98	one cycle	35	800x600x1800	430

The values listed in the table are referred to 400V nominal voltage

Aquarius plus ±30%/±25%											
ETP10-30	±30	10	280-520	20	400	14	>98	one cycle	23	410x680x1200	130
ETP15-25	±25	15	300-500	29	400	22	>98	one cycle	23	410x680x1200	130
ETP15-30	±30	15	280-520	31	400	22	>98	one cycle	23	410x680x1200	170
ETP20-25	±25	20	300-500	39	400	29	>98	one cycle	23	410x680x1200	170
ETP20-30	±30	20	280-520	41	400	29	>98	one cycle	31	600x600x1600	220
ETP30-25	±25	30	300-500	57	400	43	>98	one cycle	31	600x600x1600	220
ETP30-30	±30	30	280-520	61	400	43	>98	one cycle	35	800x600x1800	410
ETP45-25	±25	45	300-500	86	400	65	>98	one cycle	35	800x600x1800	410
ETP45-30	±30	45	280-520	93	400	65	>98	one cycle	35	800x600x1800	430
ETP60-25	±25	60	300-500	116	400	87	>98	one cycle	35	800x600x1800	430

The values listed in the table are referred to 400V nominal voltage

ODYSSEY

THREE-PHASE
80-4000kVA

Standard features

Voltage regulation	IGBT control (double conversion technology)
Voltage stabilisation	Independent phase control
Available nominal voltage*	220-230-240V (L-N) 380-400-415V (440-460-480V**) (L-L)
Output voltage accuracy	±0,5%
Frequency	50Hz ±5% or 60Hz ±5%
Correction time	<3 millisecs
Admitted load variation	Up to 100%
Admitted load imbalance	100%
Cooling	Forced ventilation
Ambient temperature	0/+40°C
Max relative humidity	<95% (non condensing)
Admitted overload	150% for 1 minute (at nominal input voltage)
Colour	RAL 9005
Protection degree	IP 2X
User interface	10" colour touch panel, multilingual (On request remotely available by dedicated software connected to the same network Ethernet)
Installation	Indoor
Communication system	MODBUS TCP/IP
Overvoltage protection	• Input class I surge arrestors • Output class II surge arrestors
Protection	Automatic by-pass protection

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.
*** 60Hz only.*

Ratings in relation to the input variation percentage

±15%	±20%	±25%	±30%
160	120	95	80
200	160	120	95
250	200	160	120
320	250	200	160
400	320	250	200
500	400	320	250
630	500	400	320
800	630	500	400
1000	800	630	500
1250	1000	800	630
1600	1250	1000	800
2000	1600	1250	1000
2500	2000	1600	1250
3200	2500	2000	1600
4000	3200	2500	2000

CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 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 not hold therefore any contractual value.

Accessories

Interrupting devices
Short circuit output protection
Manual by-pass line
Total protection kit
Input isolating transformer
Integrated automatic power factor correction system
EMI/RFI filters
Up to IP55 protection degree for indoor and outdoor installation

In the Odyssey static stabilisers, the compensation of the input voltage fluctuation is managed by exploiting the double-conversion technology.
The traditional regulating system is replaced by the converters that generate the necessary voltage once the control system has detected an incorrect situation.
The main feature of such configuration is the fast response (<3msecs), which guarantees real-time correction and voltage steadiness on the load side.
The double conversion technology also ensures insulation from disturbances and distortions in the grid. Thanks to suitable electrolytic capacitors, high power loads demands can be met.
Odyssey maintains the usual operational features: the regulation is performed on each phase independently, the load can vary between 0 and 100% on each phase and the operation is not affected by the load power factor.
The unit can operate with or without the neutral wire.
Standard units cover a wide power range and offer a double input connection so that with the same unit two different input variations (±15/±20% or ±25/±30%) can be dealt with.
A 10" multilingual touchscreen on the front door works as user interface. By surfing the available menus, the electrical measures can be read and setting parameters adjusted.
The interface is fitted with an Ethernet communication port, which, via dedicated «client», allows remote monitoring.
Communication with the control system can be established also via RS485 serial bus and Modbus TCP/IP protocol.
The standard unit is housed in an IP21 metallic enclosure with RAL9005 finish for indoor installation.
Extracting fans ensure losses dissipation and unit cooling.

WIDE RANGE

±15%, ±20%, ±25%, ±30% .
Output voltage accuracy: ±0.5%.

TECHNOLOGY

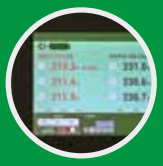
IGBT-based control logic supported by a software specifically developed for by Ortea (Starcontrol division).

SPEED

Response time: <3 milliseconds.

PROTECTION

The system is protected by class II output surge arrestors, class I input surge arrestors and automatic by-pass in case of internal failure.



USER INTERFACE

On the front panel a 10" multi-language touchscreen display provides for information on the stabiliser parameters, event log, etc.
On request, the interface can be replicated remotely via a dedicated software connected to the same Ethernet network.

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Correction time	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms]		[mm]	[kg]
Odyssey ±20%/±15%											
120-20	±20	120	320-480	217	400	173	>98	<3	–	1200x800x2000	650
160-15	±15	160	340-460	272	400	231	>98	<3	–	1200x800x2000	650
160-20	±20	160	320-480	289	400	231	>98	<3	–	1200x800x2000	700
200-15	±15	200	340-460	340	400	289	>98	<3	–	1200x800x2000	700
200-20	±20	200	320-480	361	400	289	>98	<3	–	1200x800x2000	750
250-15	±15	250	340-460	425	400	361	>98	<3	–	1200x800x2000	750
250-20	±20	250	320-480	451	400	361	>98	<3	–	1200x800x2000	850
320-15	±15	320	340-460	543	400	462	>98	<3	–	1200x800x2000	850
320-20	±20	320	320-480	577	400	462	>98	<3	–	1200x1000x2200	1000
400-15	±15	400	340-460	679	400	577	>98	<3	–	1200x1000x2200	1000
400-20	±20	400	320-480	722	400	577	>98	<3	–	1200x1000x2200	1200
500-15	±15	500	340-460	849	400	722	>98	<3	–	1200x1000x2200	1200
500-20	±20	500	320-480	902	400	722	>98	<3	–	1200x1000x2200	1500
630-15	±15	630	340-460	1070	400	909	>98	<3	–	1200x1000x2200	1500
630-20	±20	630	320-480	1137	400	909	>98	<3	–	2400x1000x2200	2000
800-15	±15	800	340-460	1359	400	1155	>98	<3	–	2400x1000x2200	2000
800-20	±20	800	320-480	1443	400	1155	>98	<3	–	2400x1000x2200	2100
1000-15	±15	1000	340-460	1698	400	1443	>98	<3	–	2400x1000x2200	2100
1000-20	±20	1000	320-480	1804	400	1443	>98	<3	–	2400x1000x2200	2300
1250-15	±15	1250	340-460	2123	400	1804	>98	<3	–	2400x1000x2200	2300
1250-20	±20	1250	320-480	2255	400	1804	>98	<3	–	4200x1000x2200	3400
1600-15	±15	1600	340-460	2717	400	2309	>98	<3	–	4200x1000x2200	3400
1600-20	±20	1600	320-480	2887	400	2309	>98	<3	–	4200x1000x2200	3600
2000-15	±15	2000	340-460	3396	400	2887	>98	<3	–	4200x1000x2200	3600
2000-20	±20	2000	320-480	3609	400	2887	>98	<3	–	4200x1400x2200	4500
2500-15	±15	2500	340-460	4245	400	3609	>98	<3	–	4200x1400x2200	4500
2500-20	±20	2500	320-480	4511	400	3609	>98	<3	–	4200x1400x2200	4900
3200-15	±15	3200	340-460	5434	400	4619	>98	<3	–	4200x1400x2200	4900
3200-20	±20	3200	320-480	5774	400	4619	>98	<3	–	4200x1400x2200	5900
4000-15	±15	4000	340-460	6793	400	5774	>98	<3	–	4200x1400x2200	5900

The values listed in the table are referred to 400V nominal voltage

Type	Input variation	Rated power	Input voltage range	Max input current	Output voltage	Rated output current	Eff.	Correction time	Cabinet type	Cabinet dimensions WxDxH	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms]		[mm]	[kg]
Odyssey ±30%/±25%											
80-30	±30	80	280-520	165	400	115	>98	<3	–	1200x800x2000	650
95-25	±25	95	300-500	183	400	137	>98	<3	–	1200x800x2000	650
95-30	±30	95	280-520	196	400	137	>98	<3	–	1200x800x2000	700
120-25	±25	120	300-500	231	400	173	>98	<3	–	1200x800x2000	700
120-30	±30	120	280-520	247	400	173	>98	<3	–	1200x800x2000	750
160-25	±25	160	300-500	308	400	231	>98	<3	–	1200x800x2000	750
160-30	±30	160	280-520	330	400	231	>98	<3	–	1200x800x2000	850
200-25	±25	200	300-500	385	400	289	>98	<3	–	1200x800x2000	850
200-30	±30	200	280-520	412	400	289	>98	<3	–	1200x1000x2200	1000
250-25	±25	250	300-500	481	400	361	>98	<3	–	1200x1000x2200	1000
250-30	±30	250	280-520	516	400	361	>98	<3	–	1200x1000x2200	1200
320-25	±25	320	300-500	616	400	462	>98	<3	–	1200x1000x2200	1200
320-30	±30	320	280-520	660	400	462	>98	<3	–	1200x1000x2200	1500
400-25	±25	400	300-500	770	400	577	>98	<3	–	1200x1000x2200	1500
400-30	±30	400	280-520	825	400	577	>98	<3	–	2400x1000x2200	2000
500-25	±25	500	300-500	962	400	722	>98	<3	–	2400x1000x2200	2000
500-30	±30	500	280-520	1031	400	722	>98	<3	–	2400x1000x2200	2100
630-25	±25	630	300-500	1212	400	909	>98	<3	–	2400x1000x2200	2100
630-30	±30	630	280-520	1299	400	909	>98	<3	–	2400x1000x2200	2300
800-25	±25	800	300-500	1540	400	1155	>98	<3	–	2400x1000x2200	2300
800-30	±30	800	280-520	1650	400	1155	>98	<3	–	4200x1000x2200	3400
1000-25	±25	1000	300-500	1925	400	1443	>98	<3	–	4200x1000x2200	3400
1000-30	±30	1000	280-520	2062	400	1443	>98	<3	–	4200x1000x2200	3600
1250-25	±25	1250	300-500	2406	400	1804	>98	<3	–	4200x1000x2200	3600
1250-30	±30	1250	280-520	2578	400	1804	>98	<3	–	4200x1400x2200	4500
1600-25	±25	1600	300-500	3079	400	2309	>98	<3	–	4200x1400x2200	4500
1600-30	±30	1600	280-520	3299	400	2309	>98	<3	–	4200x1400x2200	4900
2000-25	±25	2000	300-500	3849	400	2887	>98	<3	–	4200x1400x2200	4900
2000-30	±30	2000	280-520	4124	400	2887	>98	<3	–	4200x1400x2200	5900
2500-25	±25	2500	300-500	4811	400	3609	>98	<3	–	4200x1400x2200	5900

The values listed in the table are referred to 400V nominal voltage

ACCESSORIES

The characteristics described so far are relevant to the standard voltage stabilisers.
Accessories to perform specific tasks are available on request. Combinations or one or more of the accessories listed in the following might result in an increase of the stabiliser overall dimensions and weight.

INTERRUPTING DEVICE

LOAD PROTECTION AGAINST OVER/UNDERVOLTAGE

MANUAL BY-PASS LINE

TOTAL PROTECTION KIT

INPUT ISOLATING TRANSFORMER

INTEGRATED AUTOMATIC POWER FACTOR CORRECTION SYSTEM

SPD SURGE ARRESTOR

EMI/RFI FILTERS

NEUTRAL POINT REACTOR

IP54/55 PROTECTION DEGREE INDOOR/OUTDOOR

ORTEA CLOUD

OMR

INTERRUPTING DEVICES

Every voltage stabiliser can be fitted with an automatic circuit breaker with thermal and magnetic release on the input and/or on the output.
The input breaker protects the stabiliser and the downstream line against potential short-circuits on the input line. The output breaker protects the stabiliser against potential overload. The input breaker is sized according to the maximum input current, whilst the output one is sized in relation to the stabiliser rated current.
The automatic circuit breaker must be chosen as follows:

- Input: according to the stabiliser maximum input current.
- Output: according to the stabiliser rated output current.

Nominal current	Breaking capacity	Additional module Length / Weight	
[A]	[kA]	[mm]	[kg]
10	6 kA	not needed	
16	6 kA	not needed	
20	6 kA	not needed	
25	6 kA	not needed	
32	6 kA	not needed	
40	6 kA	not needed	
50	6 kA	not needed	
63	6 kA	not needed	
80	16 kA	not needed	
100	16 kA	not needed	
125	18 kA	not needed	
160	25 kA	not needed	
200	36 kA	not needed	
250	36 kA	not needed	
320	36 kA	not needed	
400	36 kA	not needed	
500	36 kA	not needed	
630	36 kA	not needed	
800	50 kA	not needed	
1000	50 kA	600	80
1250	50 kA	600	80
1600	50 kA	600	80
2000	65 kA	600	90
2500	65 kA	600	90
3200	85 kA	600	100
4000	85 kA	600	100
5000	100 kA	1000	180
6300	100 kA	1000	180

LOAD PROTECTION AGAINST OVER/ UNDERVOLTAGE

This circuit offers a double protection by:

- delaying the connection to the load each time the stabiliser switches on, so that the user can undergo a smooth start-up with an already stabilised voltage;
- protecting the load from surges, sags and overload by disconnecting the load from the stabiliser.

The protection intervenes when the output voltage is outside the set range (with regard to the rated value).
When the supply goes back to the regular value, the load is automatically re-connected. Up to 320A, the protection is obtained with contactors. From 400A upwards, an automatic motorised circuit breaker is used.
The protection must be sized according to the stabiliser nominal current.

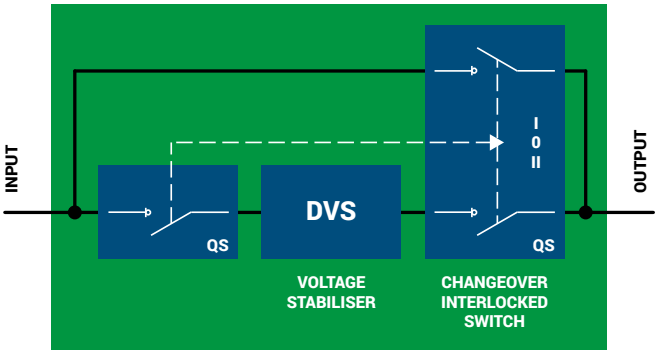
Nominal current	Additional module Length / Weight	
[A]	[mm]	[kg]
10	not needed	
16	not needed	
20	not needed	
25	not needed	
32	not needed	
40	not needed	
50	not needed	
63	not needed	
80	not needed	
100	not needed	
125	not needed	
160	not needed	
200	not needed	
250	not needed	
320	not needed	
400	not needed	
500	not needed	
630	not needed	
800	not needed	
1000	600	80
1250	600	80
1600	600	80
2000	600	90
2500	600	90
3200	600	100
4000	600	100
5000	1000	180
6300	1000	180

MANUAL BY-PASS LINE

The bypass circuit enables the stabiliser to be segregated from the line supplying the load.
The operator can therefore access the internal components and perform maintenance or repairing sessions without having to disconnect the load.
For the duration of the bypass condition, the load is directly fed by the mains: the voltage is therefore not stabilised.
The Manual by-pass switch must be chosen according to the stabiliser maximum input current.

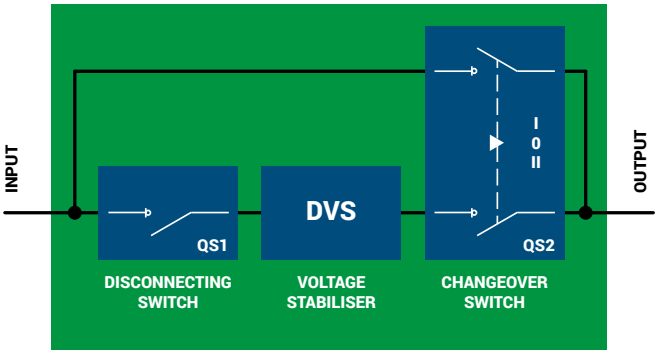
The by-pass line configuration can be:

1. CAM switch
I-0-II changeover interlocked switch (QS)



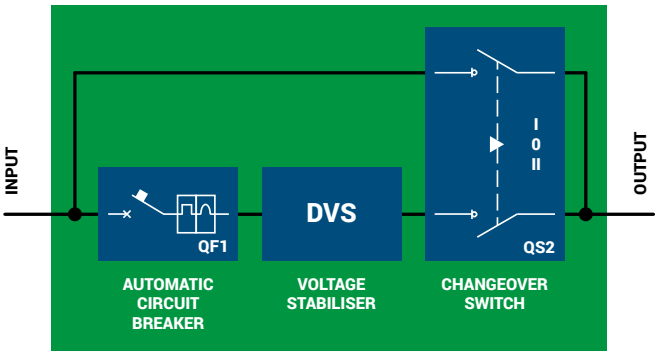
Nominal current	Replacement cabinet Type / Additional Weight	
[A]	[Nr.]	[kg]
10	not needed	
16	not needed	
20	not needed	
25	not needed	
32	not needed	
40	not needed	
50	not needed	
63	not needed	
80	31	20
100	not needed	

2. Disconnector and changeover switch
- Input disconnecting switch (QS1)
- Output I-0-II changeover interlocked switch (QS2)



Nominal current	Additional module Length / Weight	
[A]	[mm]	[kg]
125	400	70
160	400	70
200	400	70
250	400	70
320	400	70
400	400	70
500	600	90
630	600	90
800	600	90
1000	600	90
1250	600	90
1600	600	90
2000	1600	200
2500	1600	200

3. Automatic circuit breaker and changeover switch
- Input automatic circuit breaker (QF1)
- Output I-0-II changeover interlocked switch (QS2)

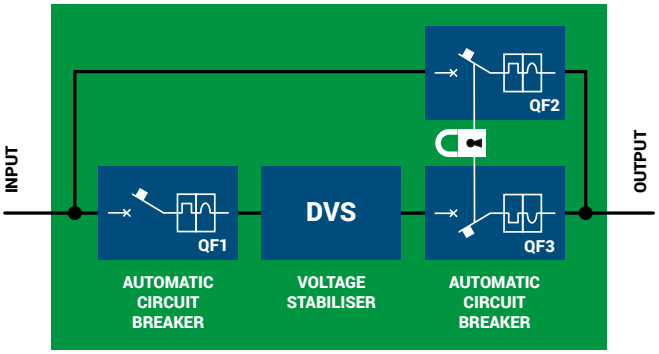


Nominal current	Additional module Length / Weight	
[A]	[mm]	[kg]
125	400	70
160	400	70
200	400	70
250	400	70
320	400	70
400	400	70
500	600	90
630	600	90
800	600	90
1000	600	90
1250	600	90
1600	600	120
2000	1200	180
2500	1600	200

TOTAL PROTECTION KIT

The total protection kit includes:
- Input automatic circuit breaker (QF1).
- Bypass switch made of an interlocked automatic circuit breaker (QF2).
- Output interlocked motorized automatic circuit breaker (QF3).

The input automatic circuit breaker protects against potential faults and/or short-circuits inside the unit. The bypass switch with automatic circuit breaker protects the load supplying line against overload and short-circuits in bypass condition. The output motorized circuit breaker (interlocked with the bypass circuit breaker) protects against overload, shortcircuit, overvoltage, undervoltage, phase sequence error and phase failure.
The total protection kit must be chosen according to the stabiliser maximum input current.



QF3 is interlocked with QF2 by means of an individual key. When one of the breakers is closed, the other one is open and the closing spring cannot be manually loaded.

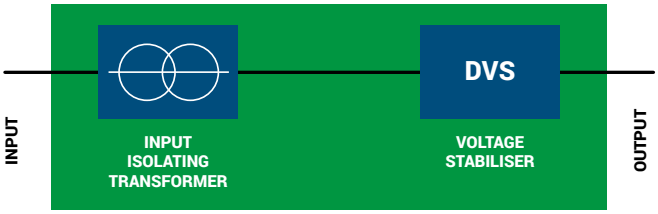
Nominal current Input / Output		Additional module Length / Weight	
[A]	[A]	[mm]	[kg]
200	160	400**	100
250	200	400**	100
320	250	400**	110
400	320	400**	125
500	400	400**	125
630	500	400**	125
800	630	600**	170
1000	800	600**	200
1250	1000	600**	200
1600	1250	600**	200
2000	1600	1200***	630
2500	2000	1200***	640
3200	2500	1200***	650
4000	3200	1200***	730
5000*	4000	1600	1100
6300*	5000	2000	1200

** Neutral wire sized for 50% of the rated current.*
*** In case of stand alone by-pass add 400mm.*
**** In case of stand alone by-pass add 600mm*

INPUT ISOLATING TRANSFORMER

The input isolation transformer is the best solution to provide for:
- galvanic separation between the stabiliser and the mains;
- delta/star or delta/zig-zag connection in order to cancel the 3rd and triplen harmonics and improve the balance of the phase voltages;
- generation of a fixed and steady neutral point;
- protection from overvoltage generated by connecting/ disconnecting manoeuvres on the line.

The transformer is fitted with electrostatic screen between primary and secondary winding. It is also possible to have high insulation level (10kV) between input and output.
The input isolating transformer must be chosen according to the stabiliser maximum input current.



Single-phase transformer for VEGA, ANTARES & GEMINI			
Current	Power	Replacement cabinet Type / Additional Weight	
[A]	[kVA]	[Nr.]	[kg]
8 A	2	13	48
13 A	3	13	59
21 A	5	22	79
34 A	8	22	95
43 A	10	23	110
52 A	12	23	113
65 A	15	23	115
86 A	20	23	125
108 A	25	31	135
130 A	30	31	150
173 A	40	40	160
217 A	50	40	220
273 A	63	40	240
304 A	70	40	260
347 A	80	43	285
391 A	90	43	300
435 A	100	43	335
478 A	110	43	355
543 A	125	55	400
770 A	175	55	455

Three-phase transformer Dyn11 for ORION & AQUARIUS			
Current	Power	Replacement cabinet Type / Additional Weight	
[A]	[kVA]	[Nr.]	[kg]
17 A	12	31	135
21 A	15	31	145
28 A	20	31	170
36 A	25	40	205
43 A	30	40	225
57 A	40	40	290
72 A	50	43	335
91 A	63	43	365
101 A	70	43	370
115 A	80	43	395

Three-phase transformer Dzn0 for ORION PLUS, SIRIUS, SIRIUS ADVANCE & ODYSSEY			
Current	Power	Additional module Cabinet / Weight	
[A]	[kVA]	[type]	[kg]
130 A	90	51	430
144 A	100	51	580
158 A	110	51	600
180 A	125	51	630
202 A	140	51	660
231 A	160	55	710
260 A	180	55	750
289 A	200	55	800
325 A	225	55	910
361 A	250	55	960
404 A	280	55	1020
462 A	320	55	1070
505 A	350	55	1120
578 A	400	55	1210
650 A	450	55	1290
722 A	500	55	1430
910 A	630	61	1700
1156 A	800	62	2000
1445 A	1000	62	2500
1806 A	1250	62	3000
2312 A	1600	62	4800
2890 A	2 x 1000	63	5200
3612 A	2 x 1250	63	6600
4650 A	2 x 1600	80	7200
5780 A	2 x 2000	80	8600
7250 A	2 x 2500	91	10600

INTEGRATED AUTOMATIC POWER FACTOR CORRECTION SYSTEM

A PFC system can be integrated in the same cabinet with a voltage stabiliser, offering the stabilisation and the correction of the power factor of the plant in the same solution.
The result is a stabilised supply to the load and a higher power factor of the load itself, with the advantage of having available the maximum active power.
Furthermore, the detuned filter (included from 1000kVA) protects the system against possible harmonics generated by non-linear loads.

Based on single-phase high energy density metallized polypropylene capacitors Un=550V

DVS power	PFC power	Additional module Length / Weight	
[kVA]	[kvar]	[mm]	[kg]
80	45	600	95
100	45	600	95
125	63	600	105
160	76	600	115
200	90	600	120
250	117	600	135
320	153	600	172

Based on three-phase high energy density metallized polypropylene capacitors Un=525V

DVS power	PFC power	Additional module Length / Weight	
[kVA]	[kvar]	[mm]	[kg]
400	175	600	180
500	200	600	200
630	300	600	230
800	350	600	250

Based on three-phase high energy density metallized polypropylene capacitors Un=525V + detuned choke 180Hz

DVS power	PFC power	Additional module Length / Weight	
[kVA]	[kvar]	[mm]	[kg]
1000	450	1200	600
1250	550	1200	650
1600	700	1200	770
2000	900	1800	890
2500	1100	1800	1155
3200	1300	2400	1335
4000	1600	2400	1780

SPD SURGE ARRESTOR

SPD arrestors protect the load and the stabiliser against voltage peaks of atmospheric or operational origin by discharging them to ground.
The installation depends on the system configuration. For example, in case of high ratings the suggested sequence would be: spark-gap arresters followed by an isolating device (ideally an isolating transformer) and varistor-based arresters on the output.

Current	Type	Discharge current	
[A]		[kA]	[poles]
CLASS I	ORTEA	25/pole	2
CLASS I	ORTEA	25/pole	4
CLASS II	ORTEA	20/pole	2
CLASS II	ORTEA	20/pole	4

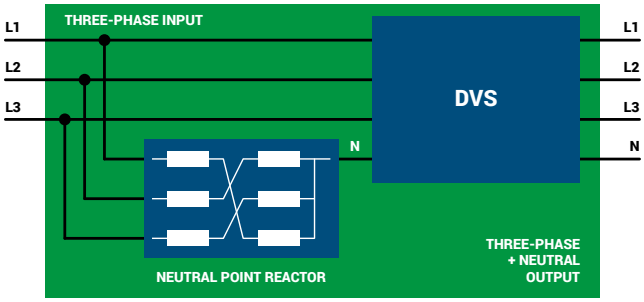
EMI/RFI FILTERS

The addition of EMI/RFI filters is a valid solution to remove the electromagnetic interferences generated by many electronic devices (converters, switching power supplies, motor drives, etc.).
The EMI/RFI filters must be chosen according to the stabiliser rated output current.

Type	Rated current
	[A]
FL170.50.00	50
FL170.100.00	100
FL170.150.00	150
FL170.300.00	300
FL170.500.00	500
FL155.800.00	800
FL155.1000.00	1000
FL155.1600.00	1600
FL155.2500.00	2500

NEUTRAL POINT REACTOR

The neutral point reactor creates a reference neutral for the system when the input AC mains does not include the neutral connection or when a stable neutral is required to supply the load.
The neutral point inductor is available for all the voltage stabilisers.



IP54/55 PROTECTION DEGREE INDOOR/ OUTDOOR

All ORTEA stabilisers can be assembled in enclosures specifically designed for IP54 or IP55 protection degree. These units are fitted with A/C systems or fans equipped with special filters in order to ensure correct ventilation and cooling of the components. The enclosures are totally sealed so that the stabilisers are suitable for operation in dusty and/or humid environments. In case of particularly aggressive conditions, the stabilisers can be assembled inside stainless steel cabinets (AISI304 or AISI316).
The cabinet for outdoor installation are painted with C3 anti-corrosion powder paint (C4 on request) and fitted with an additional protective sloping roof.

ORTEA CLOUD

The remote monitoring of equipment functions and parameters is a requirement of an increasingly IOT-oriented market.
This is how Ortea Cloud, Ortea's new platform for remote voltage stabiliser monitoring, was born. It replaces and surpasses "Stabimon", the first monitoring software designed and developed more than ten years ago by Ortea. In addition to the Sirius range, Ortea Cloud is also available for the Orion Plus range.

The system consists of the Edge component, an ARM Linux gateway installed on board the machine, and the Cloud platform.
The Edge component communicates with the unit via industrial protocols, constantly acquiring operating parameters and generating telemetry via an intelligence that can vary the sampling rate according to the status of the machine. The collected information is immediately saved on the gateway, which is able to store it locally for a period of two months in case of loss of connectivity with the cloud. When connectivity is re-established, the information is immediately sent all together.
The on-board gateway application can generate alarms:

- on the status of the connection to the cloud
- on the status of the connection to the stabiliser
- based on the values of the alarm measurements collected.

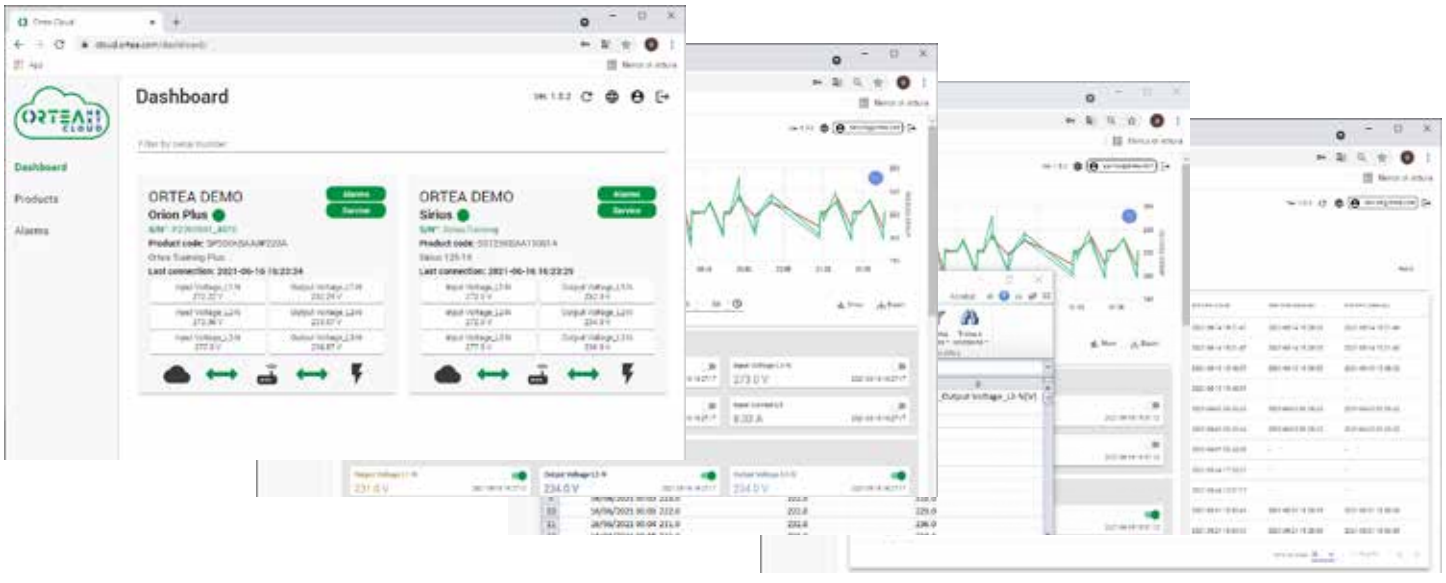
The data received from the cloud platform is processed by a rules engine capable of generating Real Time alarms based on dynamic rules, sending email notifications and storing telemetry and alarms in the database.
The cloud platform is able to show the telemetry of the measurements collected by each machine as a time series. In this way, the user can analyse their behaviour by comparing even different measurements on the same graph, thus highlighting any anomalies.
The platform manages the entire lifecycle of the machine and gateway, from installation to replacement in the event of failure. Data is stored on databases specifically designed for logging time series, allowing rapid retrieval for dashboard display or export to spreadsheets.

Ortea Cloud therefore makes it possible to:

- Remotely monitor (via PC, Tablet or Smartphone) electrical and temperature values, display active alarms/archived alarms and produce multifunctional graphs, allowing the operator to produce accurate and well-defined analyses of the operation of their plant.
- Download the data directly from the platform by selecting values and time intervals using filters.
- In the event of alarm activation/termination, the system sends an e-mail alert, allowing a quick verification and subsequent resolution of the problem.
- Activate any maintenance in real time.

The platform is available both to the end customer and, with different access credentials, to any person in charge of running the plant. Ortea offers a direct monitoring service on demand, by interacting with the relevant technical team.
Once logged in with the parameters provided by Ortea, an intuitive and easy-to-use dashboard appears, with the stabiliser or stabilisers, if more than one, active in the cloud.

Ortea Cloud is offered in two versions: the basic version (Ethernet) or the basic version + modem (should it not be possible to connect the stabiliser to a network). Access to the platform is free for the first year and there are no additional costs for software licences and updates. Thereafter, an annual or three-year renewal fee is required.



OMR

Quality and reliability: two words that have always been key to Ortea SpA's vision. The R&D department engineers are constantly looking for new solutions and means for improving our products.
The various modes for achieving this purpose include increasing the monitoring of the components, going into ever more detail, and choosing a predictive way that generates alarms so as to warn of any failures or disruptions.
Despite rigorous tests performed in the company, extended use, in the absence of suitable maintenance, can sometimes generate issues owing to component wear. Through monitoring and predictive analysis, however, it is possible to avoid any stabiliser disruptions and machine stoppages, with the resulting added costs owing to unproductive personnel, wasted raw materials, damage to/malfunctions of the connected machines, etc.
To this end, the Ortea SpA engineers have developed OMR (Ortea Monitored Rollers), an electronic system capable of monitoring the operation of all the components of the regulator columns: the beating heart, together with the electronics that govern the operation thereof, of the stabiliser.
Currently available for the top range: Sirius and Sirius Advance, OMR is able to:

- Measure the actual temperature of each column in a selective way (with resulting, quick visual identification thanks to the synoptic representation on the touch display).
- Measure the average linear distance travelled by each group of rollers (measured in metres).
- Measure the linear distance travelled by each, individual roller (measured in metres).
- Measure the linear distance travelled by the rollers in relation to the column temperature (distance travelled with temperature being: normal (green zone), high (yellow zone), or critical (red zone).
- Measure the amount of time in operation hours (measured in hours).
- Measure the amount of time in roller movement hours in relation to the column temperature (time with temperature being: normal (green zone), high (yellow zone), or critical (red zone).
- Identify, in a timely way (critical red zone) the overheating of the column and/or the blocking of a roller.

The analysis of these data, displayed on the machine's touch display, and the generation of alarms in the event of critical conditions make it possible to analyse the stabiliser's behaviour and anticipate any disruptions with timely interventions.

“SPECIAL” VOLTAGE STABILISERS

Beside designing and manufacturing customised stabilisers tailored on the Customer's requirements, ORTEA developed product series particularly thought and optimised for specific necessities and/or applications.

BTS SERIES
Telecommunication (TLC)

DLC SERIES
Line conditioners

F&B SERIES
Food & Beverage, packaging and bottling industry

CE

All ORTEA equipments are designed and built in compliance with the Low Voltage and 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 Standards. The commitment towards environmental issues and safety at work issues is guaranteed by the certification of the Management System according to the ISO14001 and OHSAS18001 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 not hold therefore any contractual value.

BTS SERIES

The acronym BTS stands for Base Transceiver Station and is used to indicate all the transmitting and receiving devices that enable the radio coverage in a telecom cell.
This is definitely an application where high quality voltage supply, regardless of the incoming fluctuation, is very often the key for ensuring efficiency and reliability, fundamental qualities to guarantee operating continuity.
Disrupted service, loss of data, security failure, inaccurate information and general inconvenience are examples of possible problems caused by unstable supply. Of course, all this results in increased costs.
A voltage stabiliser is a device able to respond to changes in the voltage level on the input line caused by sags (due to undersized distribution lines, connection of large loads to the network, ground faults, etc.) and surges (generated by disconnection of large loads, increased voltage at the generating plant, atmospheric events, etc.) The duration of such phenomena depends on their cause and is not easily predictable. Sags are generally more common especially where the distribution is not efficient.
The voltage stabiliser specifically designed for BTS sites has proved to be an efficient solution in the telecommunication field.
In comparison to a standard voltage stabiliser, a BTS unit offers the following characteristics:

- IP54 metallic enclosure for outdoor installation.
- Manual by-pass.
- Input and output circuit breakers.
- Input digital voltmeter.
- Output Class II surge arrestors.
- Optional isolating transformer.

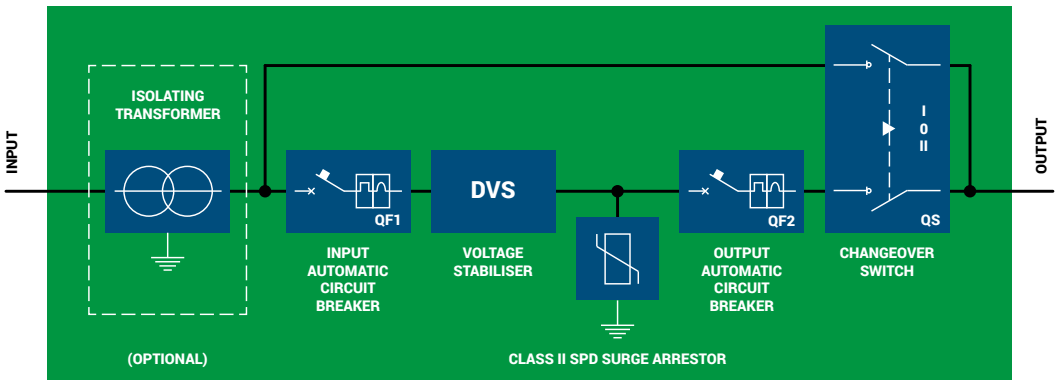
The stabilisers can be single-phase, three-phase or specifically designed for receiving a three-phase input and releasing a single-phase output. With the three-phase configuration, the regulation is performed independent on each phase and the voltage stabiliser requires the neutral wire presence for a correct operation. If the neutral wire is not available, the addition of a D/Y isolating transformer or neutral-point reactor is required.
Three-phase stabilisers can be used with three-phase loads and up to 100% unbalanced single-phase loads, even in case of asymmetric mains.
The instrumentation is installed on the cabinet door. An output digital multimetre provides with information on the line downstream the voltage stabiliser (phase and linked voltages, current, power factor, active power, apparent power, reactive power, etc).
Minimum voltage, maximum voltage, internal overheating and overload on the voltage regulator are signalled by an acoustic alarm.
The stabiliser exploits a microprocessor-based control logic.

Main features

- Power design based on the maximum input current.
- Regulation based on the "rms voltage" and insensitivity to harmonics on the mains.
- Full functionality with load charge variable from 0 to 100%.
- Up to 30% harmonic content admitted on the load current.
- Insensitivity to the load power factor.
- No generation of noticeable harmonics in the output voltage.

Protections and signals

- Motor rotation stop due to regulation reaching the limit switches.
- Maximum and minimum line voltage alarm.
- Ambient thermostat (set to 65°C).
- Automatic circuit breaker to protect the voltage regulator.
- Fuses to protect the auxiliary circuits.
- Class II surge arrestors.



Standard features	BTS1	BTS3	BTS3/1
Number of phase	1	3	3/1
Output voltage*	220-230-240V (L-N)	380-400-415V (L-L)	380-400-415V (L-L) INPUT 220-230-240V (L-N) OUTPUT
Nominal rating	from 5kVA to 80kVA		
Input voltage range	±15% - ±20% - ±25% - ±30% - +15%/-25% - +15%/-35% - +15%/-45%		
Output voltage range	±0.5%		
Frequency	50 ±5% or 60Hz ±5%		
Admitted load variation	Up to 100%		
Admitted load imbalance	n.a.	100%	n.a.
Cooling	Natural air ventilation (air extraction over 35°C)		
Ambient temperature	-25/+45°C		
Storage temperature	-25/+60°C		
Maximum relative humidity	95% (non condensing)		
Admitted overload	200% 2 min.		
Harmonic distortion	None introduced		
Colour	RAL 7035		
Protection degree	IP54		
Installation	Outdoor		
Overvoltage protection	class II surge arrestor		

** Output voltage can be adjusted by choosing one of the indicated values.*
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

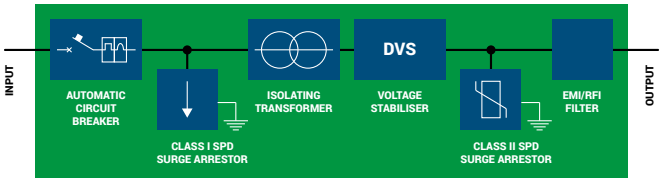
DLC SERIES

ORTEA product range is completed by a range of line conditioners based on voltage stabilisers and provided with additional protective devices.

LYBRA	Single-phase	**VEGA/ANTARES** + advanced protection	0.3-135kVA
ARIES	Three-phase	**ORION** + advanced protection	2-250kVA
ARIES PLUS	Three-phase	**ORION PLUS** + advanced protection	30-1250kVA
DISCOVERY	Three-phase	**SIRIUS** + advanced protection	60-6000kVA

The following sketch shows the typical line conditioners:

- Input automatic circuit breaker (protection against short-circuit).
- Delta/Star or Delta/Zig-zag input isolation transformer (complete galvanic isolation between the mains and the load and cancellation of third and triplen harmonics).
- Class 1 SPD surge protective device (protection against lightning).
- Class 2 SPD surge protective device (protection against transients).
- EMI/RFI filter (protection against electro-magnetic and radio-frequency noise).



F&B SERIES

Specifically designed for food & beverage, packaging and bottling industries, these voltage stabilisers are housed in an IP54 cabinet cooled via air conditioning units.
The stabiliser is therefore protected against dust or other volatile substances and liquid sprays.
The configuration includes raised feet, so that normal cleaning routines can be performed underneath the stabiliser.
On request, the cabinet can be in stainless steel.

CABINET SIZE

Type	Dimensions [mm]		
	W	D	H
11	210	400	200
12	300	460	300
13	300	560	300
21	300	500	900
22	410	530	1200
23	410	680	1200
25	1200	800	2200
31	600	600	1600
32	600	600	2000
33	800	600	2000
35	800	600	1800
36	1200	600	1600
37	1200	600	2000
40	600	800	1600
41	1000	800	1800
42	800	800	2000
43	1200	800	1600
44	2000	800	2000
45	600	800	2200
46	1800	800	1600
47	1600	800	1800
48	2200	800	1800
49	2200	800	2000
50	2400	800	1800

Type	Dimensions [mm]		
	W	D	H
51	600	800	1800
52	1800	800	2000
53	1200	800	2000
54	600	800	2000
55	1200	800	1800
56	1800	800	1800
57	2400	800	2000
58	3000	800	2000
59	3600	800	2100
60	600	1000	1800
61	1200	1000	1800
62	1800	1000	2000
63	2400	1000	2000
64	3000	1000	2000
65	3600	1000	2000
66	4200	1000	2000
67	1200	1000	2000
68	800	1000	2000
69	1200	1200	2200
70	3600	1000	2100
71	4200	1000	2100
72	4800	1000	2100
73	5400	1000	2100
74	6000	1000	2100

Type	Dimensions [mm]		
	W	D	H
75	6600	1000	2100
76	7200	1000	2100
77	1800	1000	2200
78	2400	1000	2200
79	3000	1000	2200
80	3600	1400	2200
81	4200	1400	2200
82	4800	1400	2200
83	5400	1400	2200
84	6000	1400	2200
85	6600	1400	2200
86	7200	1400	2200
87	7800	1400	2200
86	7200	1400	2200
88	7000	1400	2200
89	8000	1400	2200
90	4200	2000	2400
91	5400	2000	2400
92	6000	2000	2400
93	6600	2000	2400
94	7600	2000	2400
95	8400	2000	2400
96	8600	2000	2400

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