

# SIRIUS

# THREE-PHASE 60-6000kVA



## Standard features

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

\* 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



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

Sirius stabilisers are available for different ranges of input voltage fluctuation. In the  $\pm 15\%$ /  $\pm 20\%$  and  $\pm 25\%$ /  $\pm 30\%$  types, the change of input range is obtained through different internal connections (only up to 2000kVA  $\pm 15\%$  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.

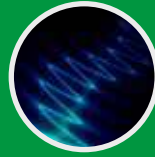
The display is remotable using VNC software.

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



## WIDE RANGE

Symmetrical:  $\pm 10\%$ ,  $\pm 15\%$ ,  $\pm 20\%$ ,  $\pm 25\%$ ,  $\pm 30\%$  (other on request).

Asymmetrical:  $\pm 15\%/-35\%$ ,  $\pm 15\%/-45\%$  (other on request).

Output voltage accuracy:  $\pm 0.5\%$ .



## TECHNOLOGY

Control and stabilisation, performed on the true RMS value, are based on two two-way DSP-microprocessor operating with a software specifically developed for Ortea 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 arrester.
- Class II output surge arrester.



## PROTECTION

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



## 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.).

(one performing the control and the other one managing the 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%											
<b>200-10</b>	±10	200	360-440	321	400	289	>98	30	54	600x800x2000	600
<b>250-10</b>	±10	250	360-440	401	400	361	>98	30	42	800x800x2000	670
<b>320-10</b>	±10	320	360-440	513	400	462	>98	30	42	800x800x2000	720
<b>400-10</b>	±10	400	360-440	642	400	577	>98	30	42	800x800x2000	800
<b>500-10</b>	±10	500	360-440	802	400	722	>98	30	55	1200x800x1800	850
<b>630-10</b>	±10	W630	360-440	1010	400	909	>98	30	55	1200x800x1800	1100
<b>800-10</b>	±10	800	360-440	1283	400	1155	>98	30	53	1200x800x2000	1400
<b>1000-10</b>	±10	1000	360-440	1604	400	1443	>98	30	62	1800x1000x2000	1700
<b>1250-10</b>	±10	1250	360-440	2005	400	1804	>98	36	62	1800x1000x2000	2200
<b>1600-10</b>	±10	1600	360-440	2566	400	2312	>98	36	63	2400x1000x2000	2400
<b>2000-10</b>	±10	2000	360-440	3208	400	2887	>98	36	64	3000x1000x2000	2650
<b>2500-10</b>	±10	2500	360-440	4009	400	3609	>98	36	70	3600x1000x2100	3500
<b>3200-10</b>	±10	3200	360-440	5132	400	4619	>98	36	70	3600x1000x2100	4100
<b>4000-10</b>	±10	4000	360-440	6415	400	5774	>98	45	80	3600x1400x2200	5250
<b>5000-10</b>	±10	5000	360-440	8019	400	7217	>98	45	80	3600x1400x2200	6050
<b>6000-10</b>	±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	1400
500-15	±15	500	340-460	849	400	722	>98	20	53	1200x800x2000	1400
500-20	±20	500	320-480	902	400	722	>98	15	62	1800x1000x2000	1700
630-15	±15	630	340-460	1070	400	909	>98	20	62	1800x1000x2000	1700
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	64	3000x1000x2000	2650
1250-15	±15	1250	340-460	2123	400	1804	>98	24	64	3000x1000x2000	2650
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%**

<b>60-30</b>	±30	60	280-520	124	400	87	>98	10	54	600x800x2000	600
<b>80-25</b>	±25	80	300-500	154	400	115	>98	12	54	600x800x2000	600
<b>80-30</b>	±30	80	280-520	165	400	115	>98	10	42	800x800x2000	670
<b>100-25</b>	±25	100	300-500	192	400	144	>98	12	42	800x800x2000	670
<b>100-30</b>	±30	100	280-520	206	400	144	>98	10	42	800x800x2000	720
<b>125-25</b>	±25	125	300-500	241	400	180	>98	12	42	800x800x2000	720
<b>125-30</b>	±30	125	280-520	258	400	180	>98	10	42	800x800x2000	800
<b>160-25</b>	±25	160	300-500	308	400	231	>98	12	42	800x800x2000	800
<b>160-30</b>	±30	160	280-520	330	400	231	>98	10	55	1200x800x1800	850
<b>200-25</b>	±25	200	300-500	385	400	289	>98	12	55	1200x800x1800	850
<b>200-30</b>	±30	200	280-520	412	400	289	>98	10	55	1200x800x1800	1100
<b>250-25</b>	±25	250	300-500	481	400	361	>98	12	55	1200x800x1800	1100
<b>250-30</b>	±30	250	280-520	516	400	361	>98	10	53	1200x800x2000	1400
<b>320-25</b>	±25	320	300-500	616	400	462	>98	12	53	1200x800x2000	1400
<b>320-30</b>	±30	320	280-520	660	400	462	>98	10	62	1800x1000x2000	1700
<b>400-25</b>	±25	400	300-500	770	400	577	>98	12	62	1800x1000x2000	1700
<b>400-30</b>	±30	400	280-520	825	400	577	>98	12	62	1800x1000x2000	1900
<b>500-25</b>	±25	500	300-500	962	400	722	>98	15	62	1800x1000x2000	1900
<b>500-30</b>	±30	500	280-520	1031	400	722	>98	12	63	2400x1000x2000	2400
<b>630-25</b>	±25	630	300-500	1212	400	909	>98	15	63	2400x1000x2000	2400
<b>630-30</b>	±30	630	280-520	1299	400	909	>98	12	64	3000x1000x2000	2650
<b>800-25</b>	±25	800	300-500	1540	400	1155	>98	15	64	3000x1000x2000	2650
<b>800-30</b>	±30	800	280-520	1650	400	1155	>98	12	70	3600x1000x2100	3500
<b>1000-25</b>	±25	1000	300-500	1925	400	1443	>98	15	70	3600x1000x2100	3500
<b>1000-30</b>	±30	1000	280-520	2062	400	1443	>98	12	70	3600x1000x2100	4150
<b>1250-25</b>	±25	1250	300-500	2406	400	1804	>98	15	70	3600x1000x2100	4150
<b>1250-30</b>	±30	1250	280-520	2578	400	1804	>98	15	80	3600x1400x2200	5250
<b>1600-25</b>	±25	1600	300-500	3079	400	2309	>98	18	80	3600x1400x2200	5250
<b>1600-30</b>	±30	1600	280-520	3299	400	2309	>98	15	80	3600x1400x2200	6050
<b>2000-25</b>	±25	2000	300-500	3849	400	2887	>98	18	80	3600x1400x2200	6050
<b>2000-30</b>	±30	2000	280-520	4124	400	2887	>98	18	90	4200x2000x2400	10000
<b>2500-25</b>	±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%

<b>80-15/35</b>	+15/-35	80	260-460	178	400	115	>98	12	54	600x800x2000	720
<b>100-15/35</b>	+15/-35	100	260-460	222	400	144	>98	12	68	800x1000x2000	800
<b>125-15/35</b>	+15/-35	125	260-460	278	400	180	>98	12	68	800x1000x2000	930
<b>160-15/35</b>	+15/-35	160	260-460	355	400	231	>98	12	68	800x1000x2000	1000
<b>200-15/35</b>	+15/-35	200	260-460	444	400	289	>98	12	55	1200x800x1800	1050
<b>250-15/35</b>	+15/-35	250	260-460	555	400	361	>98	12	52	1800x800x2000	1500
<b>320-15/35</b>	+15/-35	320	260-460	711	400	462	>98	12	52	1800x800x2000	1800
<b>400-15/35</b>	+15/-35	400	260-460	888	400	577	>98	12	63	2400x1000x2000	2100
<b>500-15/35</b>	+15/-35	500	260-460	1110	400	722	>98	15	63	2400x1000x2000	2600
<b>630-15/35</b>	+15/-35	630	260-460	1399	400	909	>98	15	64	3000x1000x2000	2950
<b>800-15/35</b>	+15/-35	800	260-460	1777	400	1155	>98	15	70	3600x1000x2100	3450
<b>1000-15/35</b>	+15/-35	1000	260-460	2221	400	1443	>98	15	70	3600x1000x2100	3950
<b>1250-15/35</b>	+15/-35	1250	260-460	2776	400	1804	>98	15	72	4800x1000x2100	4600
<b>1600-15/35</b>	+15/-35	1600	260-460	3553	400	2309	>98	18	82	4800x1400x2200	7000
<b>2000-15/35</b>	+15/-35	2000	260-460	4441	400	2887	>98	18	82	4800x1400x2200	8850
<b>2500-15/35</b>	+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%

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