



Digital voltage stabiliser

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



APPROVED MANAGING SYSTEM



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

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



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SIRIUS stabilisers are equipped with **columnar voltage regulators** which make possible to achieve high ratings (up to 6000kVA) and a **solid and reliable construction**, so that **any industrial need can be met**.

The three-phase SIRIUS line allows for the choice of several input voltage variation percentages within a broad range (from +30% down to -45%).

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

The presence of the **neutral wire** is therefore **required**.

The stabiliser can also operate without neutral wire by adding a D/zn isolating transformer or a neutral point reactor).

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

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

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

The front panel is provided with a user-friendly **LED interface** which allows for a complete monitoring of the unit. LED lights are provided for each phase signalling «power on», reaching of voltage regulation limits and direction of voltage regulation (increase/decrease).

Alarms for minimum and maximum voltages, maximum current, over-temperature, cabinet overheating and maintenance required are also indicated. The alarm indicators are accompanied by an acoustic alarm.

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

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

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

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

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

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

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

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



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Remote communication system

The all-in-one control card manages also the remote **communication** to the voltage stabiliser.

The card is fitted with a **local display** (showing alarms and setting parameters) and with a keypad used to interact with the card itself.

This **remote data monitoring system** enables the user and Ortea Service Centre the chance of monitoring the stabiliser on-line wherever installed by means of the **STABIMON** dedicated software, supplied with each unit.

Alternatively, the communication with the stabiliser can be established **via the Modbus TCP/IP protocol**.

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

STABIMON software

STABIMON is the software managing the communication

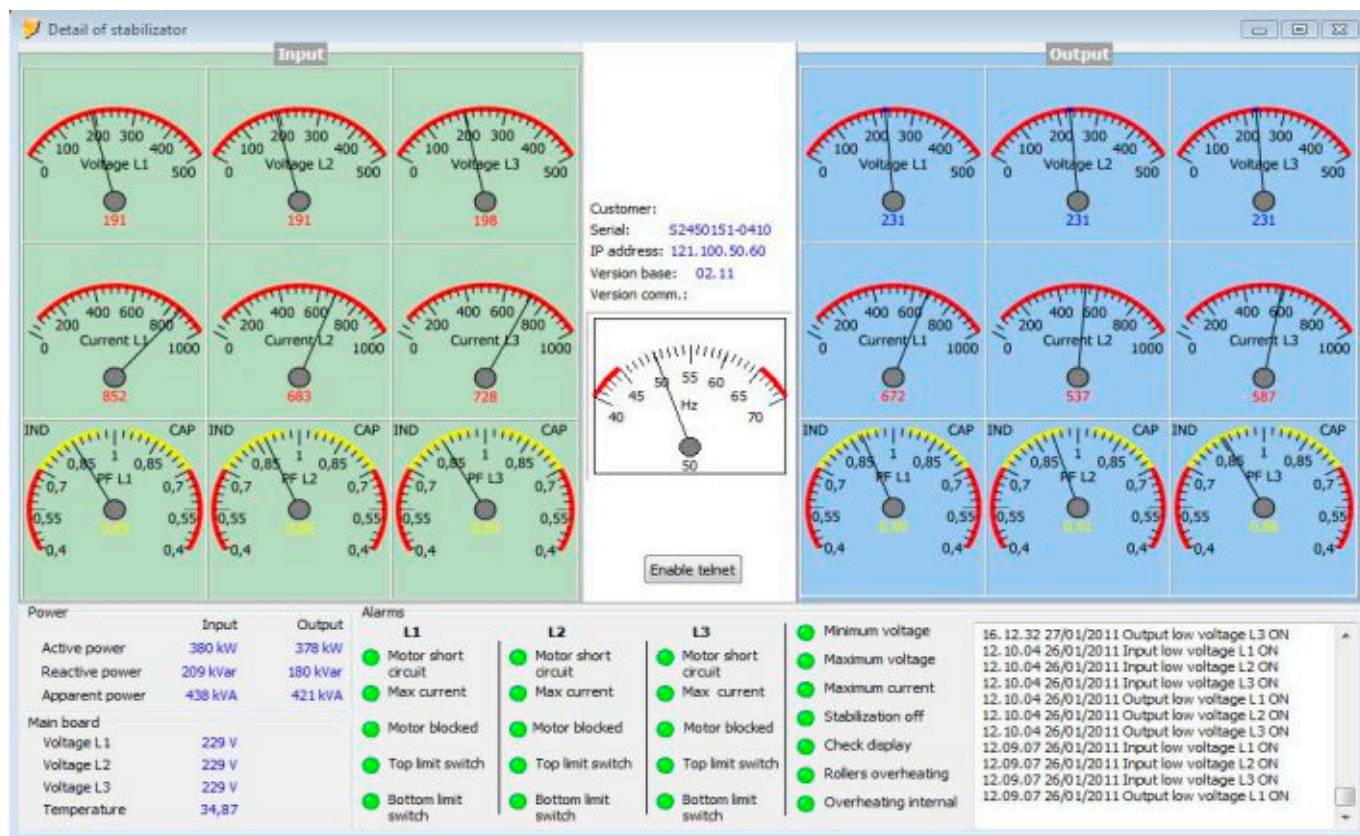
with the voltage stabiliser. The program can be run when the user wishes to communicate with the stabiliser or simply read the collected information.

In a single page, the dashboard provides the main information concerning voltage, current, power and alarm status. In the top left-hand side of the page, each phase input voltage, current and cos are shown. In the top right-hand side, the corresponding output parameters are shown.

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

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

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





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Rating in relation to the input variation percentage

$\pm 10\%$	$\pm 15\%$	$\pm 20\%$	$\pm 25\%$	$\pm 30\%$	+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





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Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage $\pm 0.5\%$	Output current	Efficiency η	Speed regulation	Enclosure	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]

Input voltage variation range $\pm 10\%$										
200-10	± 10	200	360-440	321	400	289	>98	30	54	650
250-10	± 10	250	360-440	401	400	361	>98	30	54	670
320-10	± 10	320	360-440	514	400	462	>98	30	55	900
400-10	± 10	400	360-440	642	400	578	>98	30	55	950
500-10	± 10	500	360-440	803	400	723	>98	30	55	1050
630-10	± 10	630	360-440	1011	400	910	>98	30	55	1300
800-10	± 10	800	360-440	1284	400	1156	>98	30	53	1400
1000-10	± 10	1000	360-440	1606	400	1445	>98	30	62	1700
1250-10	± 10	1250	360-440	2007	400	1806	>98	36	62	2200
1600-10	± 10	1600	360-440	2569	400	2312	>98	36	63	2400
2000-10	± 10	2000	360-440	3211	400	2890	>98	36	64	3000
2500-10	± 10	2500	360-440	4014	400	3613	>98	36	70	4000
3200-10	± 10	3200	360-440	5138	400	4624	>98	36	70	4300
4000-10	± 10	4000	360-440	6422	400	5780	>98	45	80	6000
5000-10	± 10	5000	360-440	8028	400	7225	>98	45	80	7300
6000-10	± 10	6000	360-440	9634	400	8671	>98	54	90	11000





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Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage $\pm 0.5\%$	Output current	Efficiency η	Speed regulation	Enclosure	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]

Input voltage variation range $\pm 20\% / \pm 15\%$										
100-20	± 20	100	320-480	180	400	144	>98	15	54	650
125-15	± 15	125	340-460	213	400	181	>98	20	54	670
125-20	± 20	125	320-480	226	400	181	>98	15	54	670
160-15	± 15	160	340-460	272	400	231	>98	20	55	900
160-20	± 20	160	320-480	289	400	231	>98	15	55	900
200-15	± 15	200	340-460	340	400	289	>98	20	55	950
200-20	± 20	200	320-480	361	400	289	>98	15	55	950
250-15	± 15	250	340-460	425	400	361	>98	20	55	1050
250-20	± 20	250	320-480	452	400	361	>98	15	55	1050
320-15	± 15	320	340-460	544	400	462	>98	20	55	1300
320-20	± 20	320	320-480	578	400	462	>98	15	55	1300
400-15	± 15	400	340-460	680	400	578	>98	20	53	1400
400-20	± 20	400	320-480	722	400	578	>98	15	53	1400
500-15	± 15	500	340-460	851	400	723	>98	20	62	1700
500-20	± 20	500	320-480	903	400	723	>98	15	62	1700
630-15	± 15	630	340-460	1071	400	910	>98	20	62	2200
630-20	± 20	630	320-480	1138	400	910	>98	18	62	2200
800-15	± 15	800	340-460	1360	400	1156	>98	24	63	2400
800-20	± 20	800	320-480	1445	400	1156	>98	18	63	2400
1000-15	± 15	1000	340-460	1700	400	1445	>98	24	64	3000
1000-20	± 20	1000	320-480	1806	400	1445	>98	18	64	3000
1250-15	± 15	1250	340-460	2125	400	1806	>98	24	70	4000
1250-20	± 20	1250	320-480	2258	400	1806	>98	18	70	4000
1600-15	± 15	1600	340-460	2720	400	2312	>98	24	70	4300
1600-20	± 20	1600	320-480	2890	400	2312	>98	18	70	4300
2000-15	± 15	2000	340-460	3400	400	2890	>98	24	80	6000
2000-20	± 20	2000	320-480	3613	400	2890	>98	22	80	6000
2500-15	± 15	2500	340-460	4251	400	3613	>98	30	80	6000
2500-20	± 20	2500	320-480	4516	400	3613	>98	22	80	7300
3200-15	± 15	3200	340-460	5440	400	4624	>98	30	80	7300
3200-20	± 20	3200	320-480	5780	400	4624	>98	27	90	11000
4000-15	± 15	4000	340-460	6800	400	5780	>98	36	90	11000



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Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage $\pm 0.5\%$	Output current	Efficiency η	Speed regulation	Enclosure	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]

Input voltage variation range $\pm 30\% / \pm 25\%$										
60-30	± 30	60	280-520	124	400	87	>98	10	54	650
80-25	± 25	80	300-500	154	400	116	>98	12	54	670
80-30	± 30	80	280-520	165	400	116	>98	10	54	670
100-25	± 25	100	300-500	193	400	144	>98	12	55	900
100-30	± 30	100	280-520	206	400	144	>98	10	55	900
125-25	± 25	125	300-500	241	400	181	>98	12	55	950
125-30	± 30	125	280-520	258	400	181	>98	10	55	950
160-25	± 25	160	300-500	308	400	231	>98	12	55	1050
160-30	± 30	160	280-520	330	400	231	>98	10	55	1050
200-25	± 25	200	300-500	385	400	289	>98	12	55	1300
200-30	± 30	200	280-520	413	400	289	>98	10	55	1300
250-25	± 25	250	300-500	482	400	361	>98	12	53	1400
250-30	± 30	250	280-520	516	400	361	>98	10	53	1400
320-25	± 25	320	300-500	617	400	462	>98	12	62	1700
320-30	± 30	320	280-520	661	400	462	>98	10	62	1700
400-25	± 25	400	300-500	770	400	578	>98	12	62	2200
400-30	± 30	400	280-520	826	400	578	>98	12	62	2200
500-25	± 25	500	300-500	963	400	723	>98	15	63	2400
500-30	± 30	500	280-520	1032	400	723	>98	12	63	2400
630-25	± 25	630	300-500	1214	400	910	>98	15	64	3000
630-30	± 30	630	280-520	1300	400	910	>98	12	64	3000
800-25	± 25	800	300-500	1541	400	1156	>98	15	70	4000
800-30	± 30	800	280-520	1651	400	1156	>98	12	70	4000
1000-25	± 25	1000	300-500	1927	400	1445	>98	15	70	4300
1000-30	± 30	1000	280-520	2064	400	1445	>98	12	70	4300
1250-25	± 25	1250	300-500	2408	400	1806	>98	15	80	6000
1250-30	± 30	1250	280-520	2580	400	1806	>98	15	80	6000
1600-25	± 25	1600	300-500	3083	400	2312	>98	18	80	7300
1600-30	± 30	1600	280-520	3303	400	2312	>98	15	80	7300
2000-25	± 25	2000	300-500	3853	400	2890	>98	18	80	7300
2000-30	± 30	2000	280-520	4130	400	2892	>98	18	90	11000
2500-25	± 25	2500	300-500	4817	400	3613	>98	22	90	11000



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Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage $\pm 0.5\%$	Output current	Efficiency η	Speed regulation	Enclosure	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]

Input voltage variation range +15%/-35%

80-15/35	+15/-35	80	260-460	178	400	116	>98	12	54	770
100-15/35	+15/-35	100	260-460	222	400	144	>98	12	54	800
125-15/35	+15/-35	125	260-460	278	400	181	>98	12	55	1050
160-15/35	+15/-35	160	260-460	356	400	231	>98	12	55	1150
200-15/35	+15/-35	200	260-460	444	400	289	>98	12	55	1250
250-15/35	+15/-35	250	260-460	556	400	361	>98	12	52	1700
320-15/35	+15/-35	320	260-460	711	400	462	>98	12	52	1800
400-15/35	+15/-35	400	260-460	889	400	578	>98	12	63	2100
500-15/35	+15/-35	500	260-460	1111	400	723	>98	15	63	2900
630-15/35	+15/-35	630	260-460	1400	400	910	>98	15	64	3050
800-15/35	+15/-35	800	260-460	1778	400	1156	>98	15	70	3800
1000-15/35	+15/-35	1000	260-460	2223	400	1445	>98	15	70	4450
1250-15/35	+15/-35	1250	260-460	2779	400	1806	>98	15	72	4800
1600-15/35	+15/-35	1600	260-460	3557	400	2312	>98	18	82	7700
2000-15/35	+15/-35	2000	260-460	4446	400	2890	>98	18	82	9050
2500-15/35	+15/-35	2500	260-460	5558	400	3613	>98	22	92	13500

Input voltage variation range +15%/-45%

60-15/45	+15/-45	60	220-460	158	400	87	>98	10	54	850
80-15/45	+15/-45	80	220-460	211	400	116	>98	10	54	900
100-15/45	+15/-45	100	220-460	262	400	144	>98	10	55	1200
125-15/45	+15/-45	125	220-460	329	400	181	>98	10	55	1250
160-15/45	+15/-45	160	220-460	420	400	231	>98	10	55	1400
200-15/45	+15/-45	200	220-460	525	400	289	>98	10	52	1900
250-15/45	+15/-45	250	220-460	656	400	361	>98	10	52	2000
320-15/45	+15/-45	320	220-460	840	400	462	>98	10	63	2300
400-15/45	+15/-45	400	220-460	1051	400	578	>98	12	63	3200
500-15/45	+15/-45	500	220-460	1315	400	723	>98	12	64	3400
630-15/45	+15/-45	630	220-460	1655	400	910	>98	12	70	4200
800-15/45	+15/-45	800	220-460	2102	400	1156	>98	12	70	4900
1000-15/45	+15/-45	1000	220-460	2627	400	1445	>98	12	72	5300
1250-15/45	+15/-45	1250	220-460	3284	400	1806	>98	15	82	8700
1600-15/45	+15/-45	1600	220-460	4204	400	2312	>98	15	82	10100
2000-15/45	+15/-45	2000	220-460	5254	400	2890	>98	18	92	15000