Electro-mechanical digital voltage stabilisers

2 YEARS WARRANTY

Orion Plus

three-phase
30-1250kVA

Standard features

Voltage stabilisation	Independent phase control
PC selectable output voltage*	from 210 to 255V (L-N) from 360 to 440V (L-L)
Frequency	50/60Hz ±5%
Admitted load variation	Up to 100%
Admitted load imbalance	100%
Cooling	Natural air ventilation. Up to 35°C aided with fans
Ambient temperature	-25/+45°C
Storage temperature	-25/+60°C
Max relative humidity	95%
Admitted overload	200% 2 min.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP21
Instrumentation	Input & output digital multimetre
Installation	Indoor
Overvoltage protection	– Class II output surge arrestor – Optimal voltage return through supercapacitors in case of blackout

* The 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.

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
IP54 protection degree for indoor and outdoor installation

LLOYD'S REGISTER-LRQA ISO 9001 • ISO 14001 OHSAS 18001

CE

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Rating in relation to the input variation percentage

±15%	±20%	±25%	±30%	+15%/-35%	+15%/-45%
80	60	45	30	45	30
105	80	60	45	60	45
135	105	80	60	80	60
150	120	90	80	90	80
175	135	105	90	105	90
200	150	120	105	120	105
250	175	135	120	135	120
320	250	200	150	200	150
400	300	250	200	250	200
500	400	300	250	300	250
630	500	400	300	400	300
800	630	500	400	500	400
1000	800	630	500	630	500
1250	1000	800	630	800	630

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.

- Up to 250kVA ±15%, the regulation circuit is protected against overload and short circuit on the voltage regulator by an **automatic circuit breaker**.
- From 300kVA ±15%, 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 arrestors**.

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Wide range
– symmetrical: **±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.
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
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
Up to 250kVA ±15%: The voltage regulator is protected by a three-phase automatic **circuit breaker**.
The auxiliary circuit is protected by **fuses**.
Overvoltage protection: Class II output **surge arrestor**.

Protection
From 300kVA ±15%: 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**.

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Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage ±0.5%	Output current	Efficiency	Speed regulation	Cabinet	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]
Input voltage variation range **±20%/±15%** (the values listed in the table are referred to 400V nominal voltage)										
60-20	±20	60	320-480	109	400	86	>98	12	51	430
80-15	±15	80	340-460	136		116		16		
80-20	±20	80	320-480	145	400	116	>98	12	51	490
105-15	±15	105	340-460	179		152		16		
105-20	±20	105	320-480	190	400	152	>98	12	51	580
135-15	±15	135	340-460	229		195		16		
120-20	±20	120	320-480	216	400	173	>98	14	55	710
150-15	±15	150	340-460	255		217		18		
135-20	±20	135	320-480	244	400	195	>98	14	55	760
175-15	±15	175	340-460	298		253		18		
150-20	±20	150	320-480	271	400	217	>98	14	55	850
200-15	±15	200	340-460	340		289		18		
175-20	±20	175	320-480	316	400	253	>98	14	55	950
250-15	±15	250	340-460	425		361		18		
250-20	±20	250	320-480	446	400	361	>98	15	55	850
320-15	±15	320	340-460	544		462		20		
300-20	±20	300	320-480	543	400	434	>98	15	55	1100
400-15	±15	400	340-460	680		578		20		
400-20	±20	400	320-480	723	400	578	>98	15	53	1400
500-15	±15	500	340-460	851		723		20		
500-20	±20	500	320-480	904	400	723	>98	15	67	1600
630-15	±15	630	340-460	1071		910		20		
630-20	±20	630	320-480	1138	400	910	>98	18	62	2000
800-15	±15	800	340-460	1360		1156		24		
800-20	±20	800	320-480	1445	400	1156	>98	18	62	2200
1000-15	±15	1000	340-460	1700		1445		24		
1000-20	±20	1000	320-480	1806	400	1445	>98	18	63	2400
1250-15	±15	1250	340-460	2125		1806		24		

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Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage ±0.5%	Output current	Efficiency	Speed regulation	Cabinet	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]
Input voltage variation range **±30%/±25%** (the values listed in the table are referred to 400V nominal voltage)										
30-30	±30	30	280-520	61	400	43	>98	8	51	430
45-25	±25	45	300-500	86		65		10		
45-30	±30	45	280-520	93	400	65	>98	8	51	490
60-25	±25	60	300-500	116		87		10		
60-30	±30	60	280-520	124	400	87	>98	8	51	580
80-25	±25	80	300-500	155		116		10		
80-30	±30	80	280-520	166	400	116	>98	9	55	710
90-25	±25	90	300-500	173		130		11		
90-30	±30	90	280-520	185	400	130	>98	9	55	760
105-25	±25	105	300-500	203		152		11		
105-30	±30	105	280-520	217	400	152	>98	9	55	850
120-25	±25	120	300-500	231		173		11		
120-30	±30	120	280-520	247	400	173	>98	9	55	950
135-25	±25	135	300-500	260		195		11		
150-30	±30	150	280-520	310	400	217	>98	10	55	1200
200-25	±25	200	300-500	385		289		12		
200-30	±30	200	280-520	413	400	289	>98	10	55	1300
250-25	±25	250	300-500	481		361		12		
250-30	±30	250	280-520	515	400	361	>98	10	53	1400
300-25	±25	300	300-500	579		434		12		
300-30	±30	300	280-520	620	400	434	>98	10	67	1600
400-25	±25	400	300-500	771		578		12		
400-30	±30	400	280-520	826	400	578	>98	12	62	2000
500-25	±25	500	300-500	963		723		15		
500-30	±30	500	280-520	1032	400	723	>98	12	62	2200
630-25	±25	630	300-500	1214		910		15		
630-30	±30	630	280-520	1300	400	910	>98	12	63	2400
800-25	±25	800	300-500	1541		1156		15		

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Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage ±0.5%	Output current	Efficiency	Speed regulation	Cabinet	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]
Input voltage variation range **+15%/-35%** (the values listed in the table are referred to 400V nominal voltage)										
45-15/35	+15/-35	45	260-460	100	400	65	>98	10	51	470
60-15/35	+15/-35	60	260-460	134	400	87	>98	10	51	550
80-15/35	+15/-35	80	260-460	178	400	116	>98	10	51	600
90-15/35	+15/-35	90	260-460	200	400	130	>98	11	55	850
105-15/35	+15/-35	105	260-460	234	400	152	>98	11	55	950
120-15/35	+15/-35	120	260-460	266	400	173	>98	11	55	1050
135-15/35	+15/-35	135	260-460	300	400	195	>98	11	55	1200
200-15/35	+15/-35	200	260-460	445	400	289	>98	12	55	1500
250-15/35	+15/-35	250	260-460	555	400	361	>98	12	52	1650
300-15/35	+15/-35	300	260-460	668	400	434	>98	12	52	1750
400-15/35	+15/-35	400	260-460	889	400	578	>98	12	62	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	63	3050
800-15/35	+15/-35	800	260-460	1778	400	1156	>98	15	64	3800
Input voltage variation range **+15%/-45%** (the values listed in the table are referred to 400V nominal voltage)										
30-15/45	+15/-45	30	220-460	78	400	43	>98	8	51	470
45-15/45	+15/-45	45	220-460	118	400	65	>98	8	51	550
60-15/45	+15/-45	60	220-460	158	400	87	>98	8	51	600
80-15/45	+15/-45	80	220-460	211	400	116	>98	9	55	850
90-15/45	+15/-45	90	220-460	236	400	130	>98	9	55	950
105-15/45	+15/-45	105	220-460	276	400	152	>98	9	55	1050
120-15/45	+15/-45	120	220-460	315	400	173	>98	9	55	1250
150-15/45	+15/-45	150	220-460	395	400	217	>98	10	55	1450
200-15/45	+15/-45	200	220-460	525	400	289	>98	10	52	1650
250-15/45	+15/-45	250	220-460	656	400	361	>98	10	52	1800
300-15/45	+15/-45	300	220-460	789	400	434	>98	10	62	2200
400-15/45	+15/-45	400	220-460	1051	400	578	>98	12	63	3000
500-15/45	+15/-45	500	220-460	1315	400	723	>98	12	63	3200
630-15/45	+15/-45	630	220-460	1655	400	910	>98	12	64	4000