



ACCESSORIES

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	
		[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	
	[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.

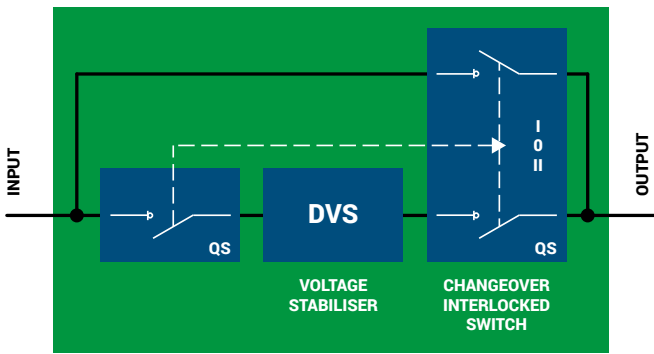
For the duration of the bypass condition, the load is directly fed by the mains: the voltage is therefore not stabilised.

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

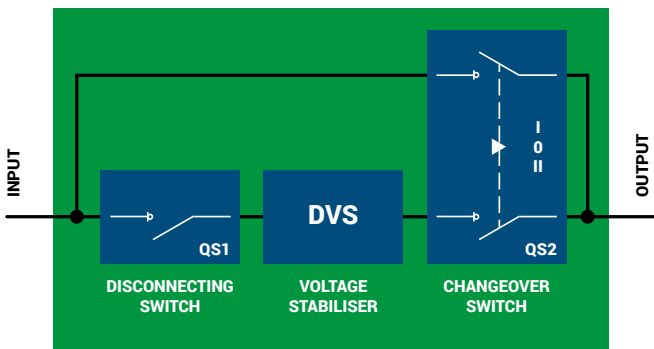
I-0-II changeover interlocked switch (QS)



Nominal current [A]	Replacement cabinet Type / Additional Weight	
	[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	40	30

2. Disconnecter and changeover switch

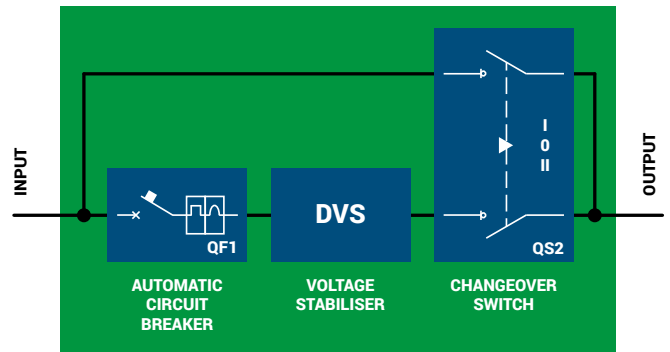
- Input disconnecting switch (QS1)
- Output I-0-II changeover interlocked switch (QS2)



Nominal current [A]	Additional module Length / Weight	
	[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 [A]	Additional module Length / Weight	
	[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

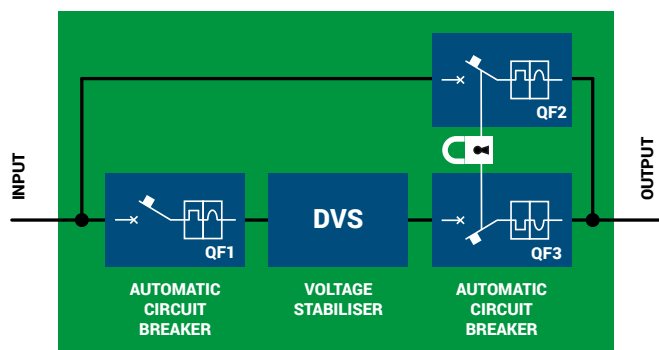
TOTAL PROTECTION KIT

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	51	710
260 A	180	51	750
289 A	200	51	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	61	2000
1445 A	1000	61	2450
1806 A	1250	62	3500
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 $U_n=550V$

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 $U_n=525V$

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 $U_n=525V$ + 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	
		[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
CLASS I	DEHN	100	2
CLASS I	DEHN	200	4
CLASS II	DEHN	40	2
CLASS II	DEHN	40	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.).

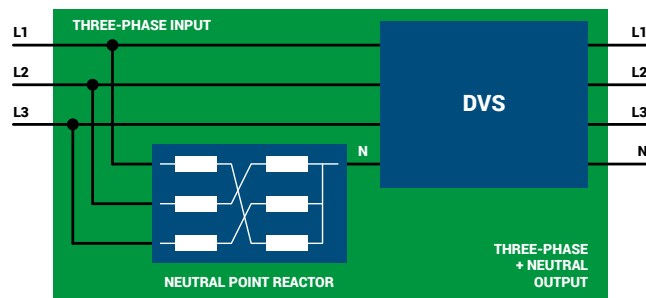
The EMI/RFI filters must be chosen according to the stabiliser rated output current.

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.

