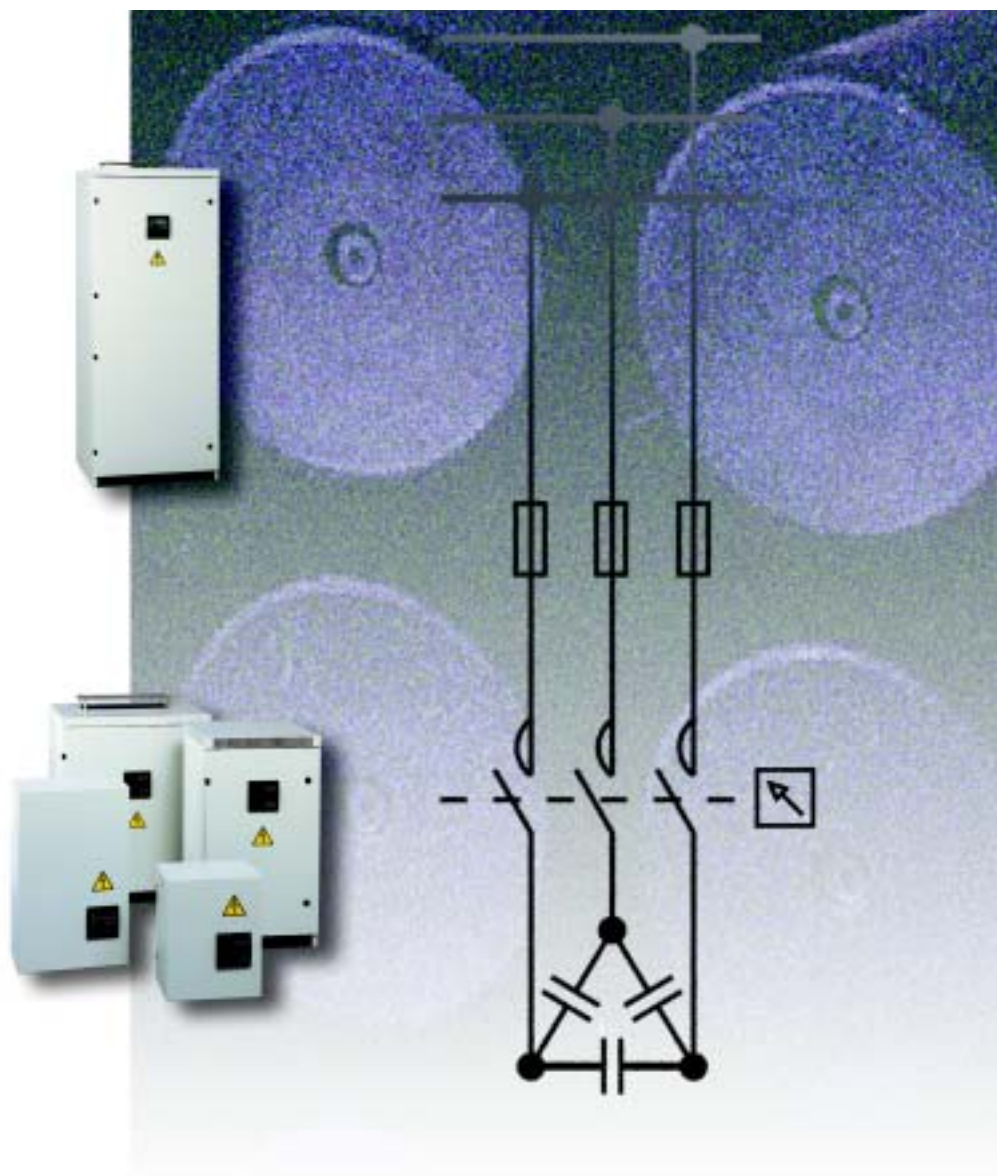


Power factor correction and harmonic filtering

Rectimat 2 Automatic capacitor banks

Catalogue

2002



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Why reduce power factor ?

Many electrical loads (transformers, motors, air conditioners, fluorescent tube ballasts,...) consume reactive power.

Power factor correction refers to the installation of a capacitor equipment to provide this reactive power instead of the distribution network.

This has the following advantages:

- a saving on electrical equipment by a reduction of power demand in kVA
- an increasing of the available power at the transformer secondary
- fewer voltage drops and Joule losses in a cable
- saving on electricity bills through:
 - the suppression of excessive reactive power consumption
 - the reduction of maximum power demand.

Effects of harmonics on capacitors

Some loads (variable speed drives, static converters, welding machines, arc furnaces, fluorescent tubes,...) pollute the electric network by creating harmonics which may cause capacitor overloads.

In order to take account of harmonic effects on capacitors, proper selection of the type of compensation equipment is essential:

- standard type
- overrated type (overrated capacitors)
- detuned type (overrated capacitors associated with detuned reactors) as described in the paragraph below.

For harmonic filtering, please consult us.

How to compensate

Capacitor equipment are chosen according to the following criteria:

■ reactive power to be installed

The equipment power Q_c (kvar) can be calculated in two ways:

- from the reactive power invoiced: monthly bill R (kvar.h) and the operating time of the installation:

$$Q_c(\text{kvar}) = \frac{R(\text{kvar} \cdot \text{h})}{t(\text{h})}$$

- from the active power and the power factor of the installation:

$$Q_c(\text{kvar}) = P(\text{kW}) \times (\tan \phi - \tan \phi')$$

where $\tan \phi$ corresponds to the $\cos \phi$ of the installation before compensation and $\tan \phi'$ to the required $\cos \phi'$ after compensation.

NB: if $Q_c > 1000$ kvar, HV compensation may be considered.

■ fixed or automatic compensation

In the case of global or workshop compensation, the Q_c/S_n criterion enables choice between a fixed and an automatic capacitor bank. The 15 % threshold is a guide value recommended to prevent the effects of off-load overcompensation.

- $Q_c/S_n < 15\%$ fixed compensation
- $Q_c/S_n > 15\%$ automatic compensation.

■ types of capacitor equipment

Capacitor equipment are available in three types depending on the level of harmonic pollution of the network.

The G_h/S_n ratio is used to select the type of capacitor equipment required:

- if $\frac{G_h}{S_n} \leq 15\%$,

standard type equipment is appropriate.

- if $15\% < \frac{G_h}{S_n} \leq 25\%$,

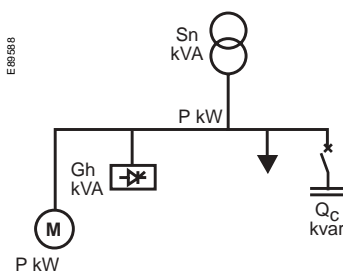
overrated equipment is designed to withstand harmonic stresses. 470 V rated voltage capacitors are used.

- if $25\% < \frac{G_h}{S_n} \leq 50\%$,

detuned type equipment includes 470 V (400/415 V network voltage) rated voltage capacitors associated with detuned reactors.

- if $\frac{G_h}{S_n} > 50\%$,

filters are recommended to be installed. Please consult us.



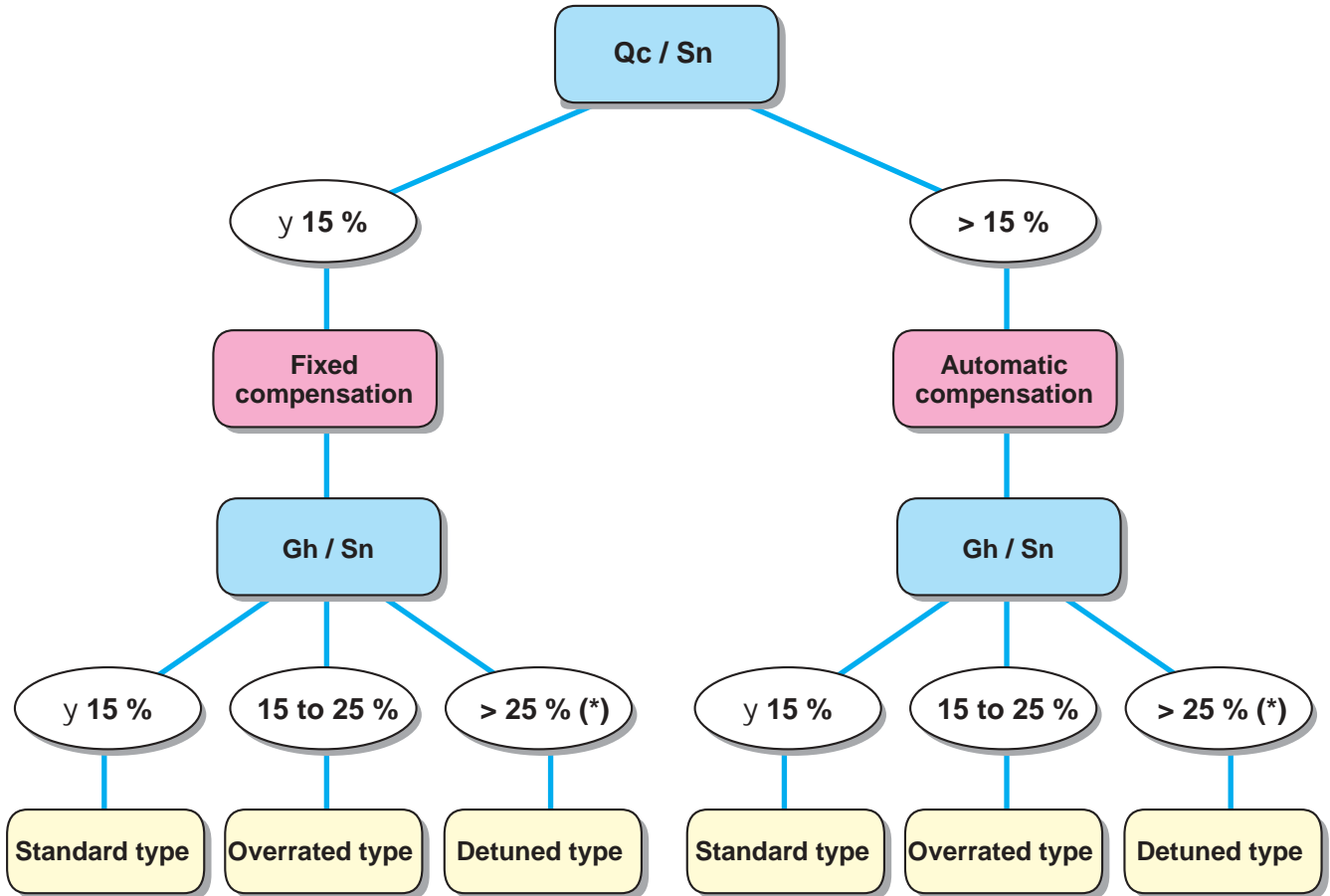
S_n : transformer apparent power.

G_h : apparent power of harmonic-producing loads (variable speed drives, static converters, power electronics,...)

Q_c : compensation equipment power.

230 V to 690 V - 50/60 Hz networks

EB9591



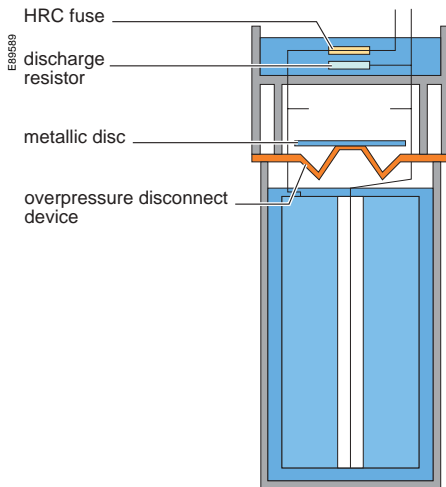
(*) When Gh/Sn > 50 %, filters are recommended to be installed. Please consult us.

Varplus M capacitors
Rectibloc fixed capacitor banks

Rectimat 2 automatic capacitor banks
Reactive compensation equipment in Prisma cubicles
Thyrimat capacitors banks with static contactors
Filters

Sn: transformer apparent power
Gh: apparent power of harmonic-producing loads
(variable speed drives, static converters, power electronics,...)
Qc: compensation equipment power

Components and subassemblies for power factor equipment:
Power factor correction modules
Power factor controllers



Cross-section of a capacitor element

Varlogic controllers simplify design, commissioning, monitoring and maintenance of automatic compensation equipment.



Varlogic R6



Varlogic R12



Varlogic RC12

Varplus M capacitors

- Varplus M capacitors cover a wide range of voltages (230 V to 690 V) and power rating from a limited number of references
 - their technology relies on the use of a self-healing metallised polypropylene film requiring no gas or liquid impregnation
 - the HQ (high quality) protection system built into each capacitor element guarantees operating safety. With its unique, patented design it has been used for more than 10 years on several million elements
 - the HQ system provides protection against the two types of faults encountered as capacitors approach the end of their service life. High current fault protection is provided by a fuse with a high breaking capacity, where as low current fault protection is provided by the combination of an overpressure disconnect device with the HRC cartridge fuse
 - whatever the fault, pressure inside the capacitor element is always limited to a value far lower than the maximum admissible pressure
 - in both cases, a standard HRC fuse is used to break the electric circuit.
- The plastic enclosure of the Varplus M capacitors has double electrical insulation
- the plastics used offer both outstanding mechanical properties and maximum self-extinguishing ratings (UL94 5 VB certification).

Varlogic R6 and R12 controllers

- Varlogic R6 and R12 meet the specifications of most applications with standard features:
 - panel or DIN rail mounting
 - phase to phase or phase to neutral connection
 - independent alarm contact
 - four regulation programs
 - seven step combination.
- a quality display (numerical on Varlogic R6, alphanumeric on Varlogic R12) enables:
 - display of the $\cos \phi$ and the energised steps
 - indication of alarm tripping
 - visualisation of setting and programming operations.
- eight alarm situations can be detected and reported on the display.
- The alarm message continues to be displayed on the screen once the fault disappears until it is reset
- in the event of low voltage or micro voltage, all capacitor steps are automatically disconnected in order to protect the equipment
- commissioning of the Varlogic R6 and R12 controllers is simplified by:
 - insensitivity to CT polarity
 - insensitivity to phase rotation polarity
 - automatic C/K ratio search feature
 - signalling of connection errors
 - a very detailed user manual.

Varlogic RC12 controller

- the RC12 Varlogic controller includes all eight alarms of the R12 model and the following control functions:
 - temperature inside the capacitor bank
 - capacitance loss of each capacitor step
 - current overload (rms/In)
 - total voltage harmonic distortion
 - overvoltage.
- An alarm is activated if the programmed thresholds are exceeded: closing of the alarm contact, message on display, indication by red LED.
- In situations of overvoltage, overtemperature or capacitor overload, all steps are automatically disconnected in order to protect the equipment.
- the information measured and processed for control requirements can be displayed:
 - configuration of contacts (normal connected or disconnected step, fixed step, step not used, free contact or fan contact)
 - load and reactive currents
 - total voltage harmonic distortion
 - step status (normal operation or with reduced capacitance)
 - current overload
 - alarm thresholds
 - compensation equipment test procedure.
 - the Varlogic RC12 programming options make it possible to meet complex specifications:
 - generator set applications
 - power factor correction with fixed step
 - overcompensation prevention
 - minimum power factor.



LC1-D contactors

LC1-D contactors for capacitors switching

Capacitor switching is followed by transient phenomena resulting from capacitor charging. In particular this creates very high overcurrent which is equivalent to a short circuit of short duration. The use of standard contactors may present risks for reliability of installations.

Contactors with one technology

The contactors used in our equipments have specially been designed for capacitor switching. They include a set of contacts and current limiting resistors which are switched off after the initial switching peak.

Personnel safety

Manual operation of contactors is impossible. Contactors include terminal covers for finger contact protection.

Safety of installations

Current limiting resistors allow to reduce transient overvoltage.

Lifetime

These specific contactors provide a ready to use solution avoiding installation of damping reactors. Their durability is far greater than that of traditional solutions (300 000 operations at 400 V).



Power factor correction modules P400

Power factor correction modules P400

The Power factor correction modules P400 are incorporated in LV electric switchboards to form an automatic compensation equipment. These modules consist of:

- Varplus M capacitors
- LC1-D contactors
- a set of HRC fuses.

This prewired solution guarantees design. In the case of highly polluted networks, the power factor correction module with integrated detuned reactor (DR) forms a unit tuned at 4.3 (standard value, other tunings on request).



Automatic compensation banks

Compensation banks

Compensation banks are designed for fixed or automatic compensation.

Fixed compensation banks

These mainly include:

- Varplus M capacitors
- circuit breaker for protection.

Automatic compensation banks

These mainly include:

- Varplus M capacitors
- LC1-D contactors
- a Varlogic power factor controller according to the controller programming mode (1-1-1-, 1-2-2, 1-1-2)...., the number of apparent steps may be less than the number of electric steps (regulation).

Capacitor banks with static contactors

Banks equipped with static contactors are available for installations with rapid regulation requirements.

In highly polluted networks, detuned reactors are connected with the capacitors to form a unit tuned at 4.3 (standard value, other tunings on request). These are the detuned type capacitor banks.

In some configurations (low Ssc high capacitor power), a different tuning frequency may be required to prevent disturbing the power network remote control frequency. Contact our sales departments.

NB: for oversized and detuned type capacitors and banks, the reactive power given is that provided at the network voltage 400 V.

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings



Rectimat 2 cubicle 1



Rectimat 2 cubicle 2



Rectimat 2 cubicle 3

Standard type

No polluted network (Gh/Sn ≤ 15 %)

Rectimat 2				
230 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
45	3 x 15	Cubicle 1	NS160	52600
60	4 x 15	Cubicle 1	NS250	52739
75	5 x 15	Cubicle 1	NS400	52601
90	6 x 15	Cubicle 1	NS400	52740
105	7 x 15	Cubicle 2	NS400	52602
120	8 x 15	Cubicle 2	NS630	52603
135	9 x 15	Cubicle 2	NS630	52741
150	10 x 15	Cubicle 3	NS630	52604
165	11 x 15	Cubicle 3	NS630	52742
180	12 x 15	Cubicle 3	NS630	52605
195	13 x 15	Cubicle 3	C801	52743
210	14 x 15	Cubicle 4	C801	52606
225	15 x 15	Cubicle 3	C801	52744
240	16 x 15	Cubicle 4	C1001	52745
255	17 x 15	Cubicle 4	C1001	52607
270	18 x 15	Cubicle 4	C1001	52746
285	19 x 15	Cubicle 4	C1001	52747
300	20 x 15	Cubicle 4	C1251	52608

(1) out of supply

Technical data

- capacitor rated voltage: 240 V, three-phase 50 Hz
- capacitance value tolerance: 0, +10%
- insulation level:
 - 0.69 kV
 - withstand 50 Hz 1 min: 2.5 kV.
- maximum permissible current: 1.3 In (230 V)
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 253 V
- temperature class (230 V):
 - maximum temperature: 40°C
 - average temperature over 24 hrs: 35°C
 - average annual temperature: 25°C
 - minimum temperature: -5°C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

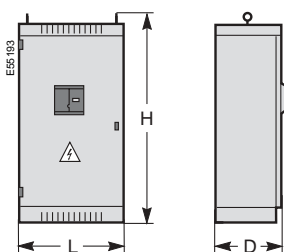
Accessories for Rectimat 2	Ref.
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicles 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

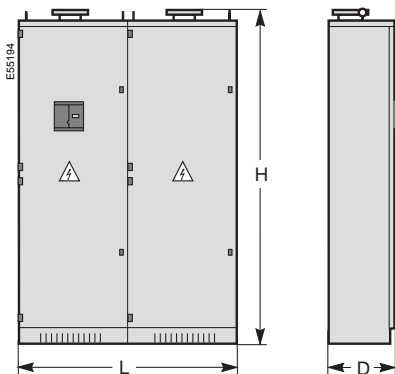
- fixing:
- enclosure: wall mounting or free standing with plinth (accessory)
- cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/60 Hz power supply to supply the contactor coils.

Options

- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

Standard type 230 V (kvar)	Type	Dimensions (mm)			Weight (kg)
		H	L	D	
45	Cubicle 1	1050	550	500	60
60	Cubicle 1	1050	550	500	65
75	Cubicle 1	1050	550	500	80
90	Cubicle 1	1050	550	500	85
105	Cubicle 2	1050	800	500	140
120	Cubicle 2	1050	800	500	140
135	Cubicle 2	1050	800	500	150
150	Cubicle 3	2100	800	500	160
165	Cubicle 3	2100	800	500	265
180	Cubicle 3	2100	800	500	270
195	Cubicle 3	2100	800	500	280
210	Cubicle 4	2100	1600	500	285
225	Cubicle 3	2100	800	500	290
240	Cubicle 4	2100	1600	500	300
255	Cubicle 4	2100	1600	500	310
270	Cubicle 4	2100	1600	500	320
285	Cubicle 4	2100	1600	500	325
300	Cubicle 4	2100	1600	500	330

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings.



Rectimat 2 enclosure 1



Rectimat 2 cubicle 1



Rectimat 2 cubicle 3

Standard type

No polluted network (Gh/Sn ≤ 15 %)

Rectimat 2									
400 V Step (kvar)	Type	(1)	Ref.	400 V Step (kvar)	Type	(1)	Ref.		
7.5	3x2.5	Enclosure 1	NS100	52812	67.5	9x7.5	Enclosure 2	NS160	52830
10	4x2.5	Enclosure 1	NS100	52813	75	5x15	Enclosure 2	NS160	52612
12.5	5x2.5	Enclosure 1	NS100	52814	90	3x30	Cubicle 1	NS250	52613
15	3x5	Enclosure 1	NS100	52815	105	7x15	Cubicle 1	NS250	52614
17.5	7x2.5	Enclosure 1	NS100	52816	120	8x15	Cubicle 2	NS250	52615
20	4x5	Enclosure 1	NS100	52817	150	5x30	Cubicle 1	NS400	52616
22.5	3x7.5	Enclosure 1	NS100	52675	180	6x30	Cubicle 1	NS400	52617
25	5x5	Enclosure 1	NS100	52818	210	7x30	Cubicle 2	NS630	52618
30	4x7.5	Enclosure 1	NS100	52609	240	8x30	Cubicle 2	NS630	52619
	3x10	Enclosure 1	NS100	52819	270	9x30	Cubicle 2	NS630	52620
	6x5	Enclosure 1	NS100	52820	315	7x45	Cubicle 3	NS630	52621
35	7x5	Enclosure 2	NS100	52821	360	8x45	Cubicle 3	C801	52622
37.5	5x7.5	Enclosure 1	NS100	52676	405	9x45	Cubicle 3	C801	52623
40	4x10	Enclosure 2	NS100	52822	450	5x90	Cubicle 3	C1001	52624
	8x5	Enclosure 2	NS100	52823	495	11x45	Cubicle 4	C1001	52625
45	3x15	Enclosure 1	NS100	52610	540	6x90	Cubicle 4	C1251	52626
	6x7.5	Enclosure 2	NS100	52677	585	13x45	Cubicle 4	C1251	52627
	9x5	Enclosure 2	NS100	52824	630	7x90	Cubicle 4	C1251	52628
50	5x10	Enclosure 2	NS100	52825	675	15x45	Cubicle 4	CM1600	52629
52.5	7x7.5	Enclosure 2	NS160	52678	720	8x90	Cubicle 4	CM1600	52630
55	11x5	Enclosure 2	NS160	52826	765	17x45	Cubicle 4	CM1600	52631
60	4x15	Enclosure 2	NS160	52611	810	9x90	Cubicle 4	CM1600	52632
	6x10	Enclosure 2	NS160	52827	855	19x45	Cubicle 4	CM2000	52633
	8x7.5	Enclosure 2	NS160	52828	900	10x90	Cubicle 4	CM2000	52634
62.5	5x12.5	Enclosure 2	NS160	52829					

(1) recommended circuit breaker (out of supply)

Technical data

- capacitor rated voltage: 400 V, three-phase 50 Hz
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0.69 kV
 - withstand 50 Hz 1 min: 2.5 kV.
- maximum permissible current: 1.3 In (400 V)
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 450 V
- temperature class (400 V):
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 400/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

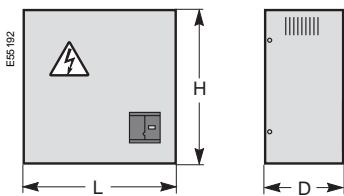
Accessories for Rectimat 2	Ref.
Free-standing plinth for enclosures 1 and 2	52671
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicles 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

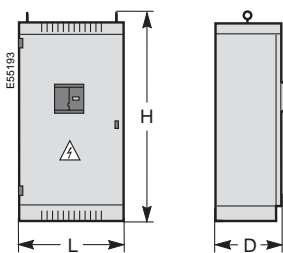
- fixing:
 - enclosure: wall mounting or free standing with plinth (accessory)
 - cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitorbank and loads
- it is not necessary to provide a 230 V/50 Hz power supply to supply the contactor coils.

Options

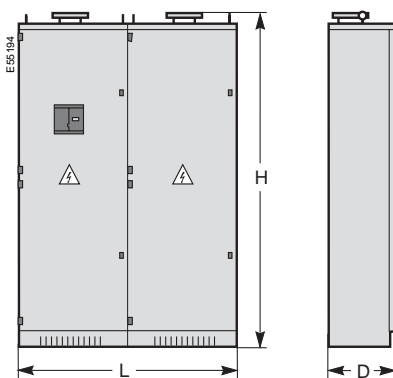
- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 enclosures 1 and 2



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

Standard type		Dimensions (mm)			Weight (kg)
400 V (kvar)	Type	H	L	D	
7.5	Enclosure 1	400	500	250	20
10	Enclosure 1	400	500	250	20
12.5	Enclosure 1	400	500	250	20
15	Enclosure 1	400	500	250	20
17.5	Enclosure 1	400	500	250	20
20	Enclosure 1	400	500	250	20
22.5	Enclosure 1	400	500	250	20
25	Enclosure 1	400	500	250	20
30	Enclosure 1	400	500	250	20
35	Enclosure 2	800	500	250	25
37.5	Enclosure 1	400	500	250	20
40	Enclosure 2	800	500	250	25
45	3 x 15 6 x 7.5 - 9 x 5	400	500	250	25
		800	500	250	25
50	Enclosure 2	800	500	250	25
52.5	Enclosure 2	800	500	250	25
55	Enclosure 2	800	500	250	25
60	Enclosure 2	800	500	250	40
62.5	Enclosure 2	800	500	250	40
67.5	Enclosure 2	800	500	250	40
75	Enclosure 2	800	500	250	45
90	Cubicle 1	1050	550	500	60
105	Cubicle 1	1050	550	500	70
120	Cubicle 2	1050	800	500	70
150	Cubicle 1	1050	550	500	70
180	Cubicle 1	1050	550	500	75
210	Cubicle 2	1050	800	500	90
240	Cubicle 2	1050	800	500	100
270	Cubicle 2	1050	800	500	105
315	Cubicle 3	2100	800	500	155
360	Cubicle 3	2100	800	500	165
405	Cubicle 3	2100	800	500	170
450	Cubicle 3	2100	800	500	180
495	Cubicle 4	2100	1600	500	300
540	Cubicle 4	2100	1600	500	305
585	Cubicle 4	2100	1600	500	315
630	Cubicle 4	2100	1600	500	325
675	Cubicle 4	2100	1600	500	330
720	Cubicle 4	2100	1600	500	340
765	Cubicle 4	2100	1600	500	345
810	Cubicle 4	2100	1600	500	355
855	Cubicle 4	2100	1600	500	360
900	Cubicle 4	2100	1600	500	370

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings.



Rectimat 2 enclosure 2



Rectimat 2 cubicle 1



Rectimat 2 cubicle 3

Overrated type

Polluted network (15 % < Gh/Sn ≤ 25 %)

Rectimat 2					
400 V (kvar)	470 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
30	41	4 x 7,5	Enclosure 2	NS100	52635
45	62	6 x 7,5	Enclosure 2	NS100	52636
50	69	5 x 10	Enclosure 2	NS160	52637
80	110	8 x 10	Cubicle 2	NS250	52638
100	138	5 x 20	Cubicle 1	NS250	52639
120	166	6 x 20	Cubicle 1	NS400	52640
160	221	8 x 20	Cubicle 2	NS400	52641
180	249	9 x 20	Cubicle 2	NS400	52642
210	290	6 x 35	Cubicle 2	NS630	52643
245	338	7 x 35	Cubicle 3	NS630	52644
280	387	8 x 35	Cubicle 3	NS630	52645
315	435	9 x 35	Cubicle 3	C801	52646
350	483	10 x 35	Cubicle 3	C801	52647
420	580	6 x 70	Cubicle 4	C1001	52648
455	628	13 x 35	Cubicle 4	C1001	52649
525	725	15 x 35	Cubicle 4	C1251	52650
560	773	8 x 70	Cubicle 4	C1251	52651
630	870	9 x 70	Cubicle 4	CM1600	52652
700	966	10 x 70	Cubicle 4	CM1600	52653

(1) out of supply

Technical data

- capacitor rated voltage: 470 V, three-phase 50 Hz
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0.69 kV
 - withstand 50 Hz 1 min: 2.5 kV.
- maximum permissible current: 1,5 I_n (400 V).
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 517 V
- temperature class (400 V):
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 400/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

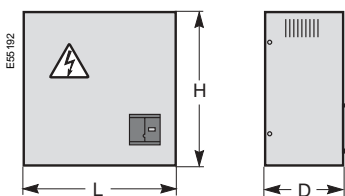
Accessories for Rectimat 2	Ref.
Free-standing plinth for enclosures 1 and 2	52671
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicles 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

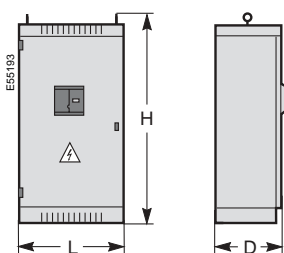
- fixing:
- enclosure: wall mounting or free standing with plinth (accessory)
- cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/50 Hz power supply to supply the contactor coils.

Options

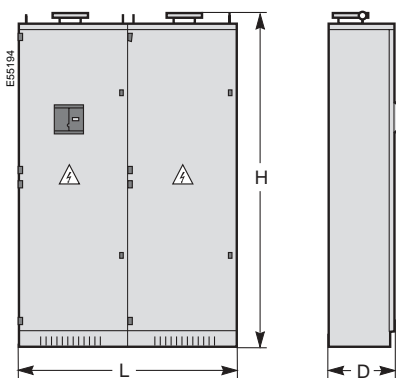
- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 enclosure 2



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

Overrated type		Type	Dimensions (mm)			Weight (kg)
400 V (kvar)	470 V (kvar)		H	L	D	
30	41	Enclosure 2	800	500	250	40
45	62	Enclosure 2	800	500	250	45
50	69	Enclosure 2	800	500	250	45
80	110	Cubicle 2	1050	800	500	70
100	138	Cubicle 1	1050	550	500	70
120	166	Cubicle 1	1050	550	500	75
160	221	Cubicle 2	1050	800	500	100
180	249	Cubicle 2	1050	800	500	105
210	290	Cubicle 2	1050	800	500	100
245	338	Cubicle 3	2100	800	500	160
280	387	Cubicle 3	2100	800	500	170
315	435	Cubicle 3	2100	800	500	180
350	483	Cubicle 3	2100	800	500	190
420	580	Cubicle 4	2100	1600	500	330
455	628	Cubicle 4	2100	1600	500	330
525	725	Cubicle 4	2100	1600	500	345
560	773	Cubicle 4	2100	1600	500	370
630	870	Cubicle 4	2100	1600	500	390
700	966	Cubicle 4	2100	1600	500	390

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure.



Rectimat 2 cubicle 2



Rectimat 2 cubicle 3

Detuned type

Highly polluted network (25 % < Gh/Sn ≤ 50 %)

Rectimat 2				
400 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
25	2 x 12.5	Cubicle 2	NS100	52654
37.5	3 x 12.5	Cubicle 2	NS100	52655
50	4 x 12.5	Cubicle 2	NS100	52656
62.5	5 x 12.5	Cubicle 2	NS160	52657
75	3 x 25	Cubicle 2	NS160	52658
100	4 x 25	Cubicle 2	NS250	52659
125	5 x 25	Cubicle 3	NS250	52660
150	6 x 25	Cubicle 3	NS400	52661
150	3 x 50	Cubicle 3	NS400	52662
175	7 x 25	Cubicle 3	NS400	52663
200	4 x 50	Cubicle 3	NS400	52664
250	5 x 50	Cubicle 3B	NS630	52665
300	6 x 50	Cubicle 3B	NS630	52666
350	7 x 50	Cubicle 4	C801	52667
400	8 x 50	Cubicle 4	C801	52668
450	9 x 50	Cubicle 4	C1001	52669
500	10 x 50	Cubicle 4	C1001	52670
550	11 x 50	Cubicle 4B	C1251	52810
600	12 x 50	Cubicle 4B	C1251	52811

(1) out of supply

Technical data

- capacitor rated voltage: 470 V, three-phase 50 Hz
- tuning order: 4.3 (215 Hz)
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0.69 kV
 - withstand 50 Hz 1 min: 2.5 kV
- maximum permissible current: 1.27 In (400 V)
- temperature class (400 V):
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 400/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

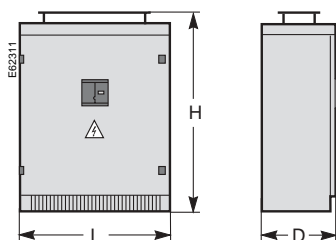
Accessories for Rectimat 2	Ref.
Plinth H = 250 for cubicles detuned type 2 and 3	52673
Plinth H = 250 for cubicle detuned type 4	2 x 52673
Plinth H = 250 for cubicle detuned type 3B	52672 + 52673
Plinth H = 250 for cubicle detuned type 4B	2 x 52673 + 52672

Installation

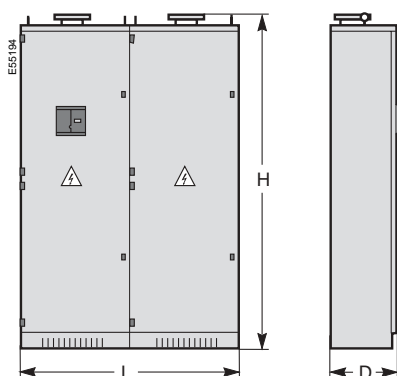
- fixing:
- cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/50 Hz power supply to supply the contactor coils.

Options

- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection.



Rectimat 2 cubicle 2



Rectimat 2 cubicles 3 and 4

Dimensions

Detuned type 400 V (kvar)	Type	Dimensions (mm)			Weight (kg)
		H	L	D	
25	Cubicle 2	1050	800	500	115
37.5	Cubicle 2	1050	800	500	125
50	Cubicle 2	1050	800	500	135
62.5	Cubicle 2	1050	800	500	145
75	Cubicle 2	1050	800	500	155
100	Cubicle 2	1050	800	500	175
125	Cubicle 3	2100	800	500	290
150	Cubicle 3	2100	800	500	310
150	Cubicle 3	2100	800	500	310
175	Cubicle 3	2100	800	500	330
200	Cubicle 3	2100	800	500	350
250	Cubicle 3B	2100	1350	500	450
300	Cubicle 3B	2100	1350	500	460
350	Cubicle 4	2100	1600	500	520
400	Cubicle 4	2100	1600	500	560
450	Cubicle 4	2100	1600	500	600
500	Cubicle 4	2100	1600	500	640
550	Cubicle 4B	2100	2150	500	700
600	Cubicle 4B	2100	2150	500	740

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings



Rectimat 2 cubicle 2



Rectimat 2 cubicle 3

Standard type

No polluted network (Gh/Sn ≤ 15 %)

Rectimat 2				
240 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
50	5 x 10	Cubicle 1	NS250	71390286
60	6 x 10	Cubicle 2	NS250	71390287
80	4 x 20	Cubicle 2	NS400	71390288
100	5 x 20	Cubicle 2	NS400	71390289
160	4 x 40	Cubicle 3	NS630	71390290
200	5 x 40	Cubicle 3	C801	71390291
240	6 x 40	Cubicle 4	C1001	71390292
280	7 x 40	Cubicle 4	C1251	71390293
320	8 x 40	Cubicle 4	C1251	71390294
360	9 x 40	Cubicle 4	C1251	71390295
400	10 x 40	Cubicle 4	CM1600	71390296

(1) out of supply

Technical data

- capacitor rated voltage: 240 V, three-phase 60 Hz
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0.66 kV
 - withstand 60 Hz 1 min: 2,5 kV.
- maximum permissible current: 1.3 In (240 V)
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 264 V
- temperature class (400 V):
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 240/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439.

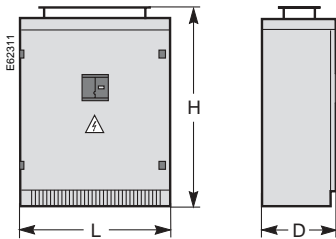
Accessories for Rectimat 2	Ref.
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicle 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

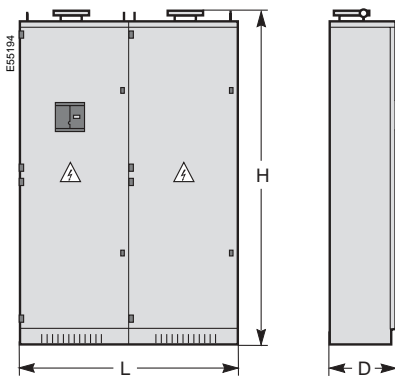
- fixing:
- cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/60 Hz power supply to supply the contactor coils.

Option

- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

240 V (kvar)	Type	Dimensions (mm)			Weight (kg)
		H	L	D	
50	cubicle 1	1050	550	500	70
60	Cubicle 2	1050	550	500	80
80	Cubicle 2	1050	800	500	90
100	Cubicle 2	1050	800	500	100
160	Cubicle 3	2100	800	500	160
200	Cubicle 3	2100	800	500	180
240	Cubicle 4	2100	1600	500	240
280	Cubicle 4	2100	1600	500	260
320	Cubicle 4	2100	1600	500	280
360	Cubicle 4	2100	1600	500	300
400	Cubicle 4	2100	1600	500	320

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings.



Rectimat 2 enclosure 1



Rectimat 2 cubicle 1



Rectimat 2 cubicle 3

Standard type

No polluted network (Gh/Sn ≤ 15 %)

Rectimat 2				
400 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
45	3 x 15	Enclosure 1	NS100	72393711
60	4 x 15	Enclosure 2	NS160	72393712
75	5 x 15	Enclosure 2	NS160	72393713
90	6 x 15	Cubicle 1	NS250	72393714
105	7 x 15	Cubicle 1	NS250	72393715
120	8 x 15	Cubicle 2	NS250	72393716
135	9 x 15	Cubicle 2	NS400	72393717
150	5 x 30	Cubicle 2	NS400	72393718
180	6 x 30	Cubicle 2	NS400	72393719
210	7 x 30	Cubicle 3	NS630	72393720
240	8 x 30	Cubicle 3	NS630	72393721
270	9 x 30	Cubicle 3	NS630	72393722
300	5 x 60	Cubicle 3	NS630	72393723
360	6 x 60	Cubicle 4	C801	72393724
420	7 x 60	Cubicle 4	C801	72393725
480	8 x 60	Cubicle 4	C1001	72393726
540	9 x 60	Cubicle 4	C1251	72393727
600	10 x 60	Cubicle 4	C1251	72393728

(1) out of supply

Technical data

- capacitor rated voltage: 415 V, three-phase 60 Hz
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0,69 kV
 - withstand 60 Hz 1 min: 2.5 kV.
- maximum permissible current: 1.3 I_n (400 V)
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 456 V
- temperature class (400 V):
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 400/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

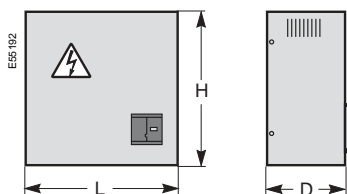
Accessories for Rectimat 2	Ref.
Free-standing plinth for enclosures 1 and 2	52671
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicles 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

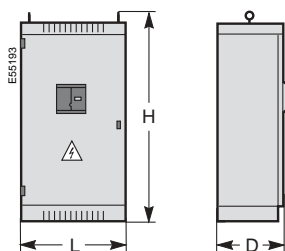
- fixing:
 - enclosure: wall mounting or free standing with plinth (accessory)
 - cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/60 Hz power supply to supply the contactor coils.

Options

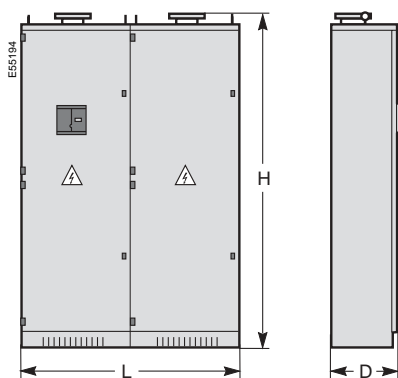
- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 enclosures 1 and 2



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

Standard type 400 V (kvar)	Type	Dimensions (mm)			Weight (kg)
		H	L	D	
45	Enclosure 1	400	500	250	25
60	Enclosure 2	800	500	250	40
75	Enclosure 2	800	500	250	45
90	Cubicle 1	1050	550	500	60
105	Cubicle 1	1050	550	500	70
120	Cubicle 2	1050	800	500	80
135	Cubicle 2	1050	800	500	80
150	Cubicle 2	1050	800	500	90
180	Cubicle 2	1050	800	500	90
210	Cubicle 3	2100	800	500	120
240	Cubicle 3	2100	800	500	130
270	Cubicle 3	2100	800	500	140
300	Cubicle 3	2100	800	500	150
360	Cubicle 4	2100	1600	500	240
420	Cubicle 4	2100	1600	500	260
480	Cubicle 4	2100	1600	500	280
540	Cubicle 4	2100	1600	500	300
600	Cubicle 4	2100	1600	500	320

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings.



Rectimat 2 enclosure 2



Rectimat 2 cubicle 1



Rectimat 2 cubicle 3

Overtaxed type

Polluted network (15 % < Gh/Sn ≤ 25 %)

Rectimat 2					
400 V (kvar)	470 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
50	68	4 x 12.5	Enclosure 1	NS160	72393729
63	85	5 x 12.5	Enclosure 2	NS160	72393730
75	102	6 x 12.5	Enclosure 2	NS250	72393731
100	136	4 x 25	Cubicle 1	NS250	72393732
125	170	5 x 25	Cubicle 2	NS400	72393733
150	204	6 x 25	Cubicle 3	NS400	72393734
200	272	4 x 50	Cubicle 3	NS630	72393735
250	340	5 x 50	Cubicle 3	NS630	72393736
300	408	6 x 50	Cubicle 4	C801	72393737
350	476	7 x 50	Cubicle 4	C801	72393738
400	544	8 x 50	Cubicle 4	C1001	72393739
450	612	9 x 50	Cubicle 4	C1001	72393740
500	680	10 x 50	Cubicle 4	C1251	72393741

(1) out of supply

Technical data

- capacitor rated voltage: 470 V, three-phase 60 Hz
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0,69 kV
 - withstand 60 Hz 1 min: 2.5 kV.
- maximum permissible current: 1.5 In (400 V).
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 517 V
- temperature class (400 V)
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C).
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 400/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

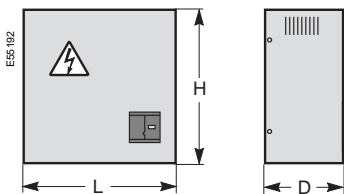
Accessories for Rectimat 2	Ref.
Free-standing plinth for enclosures 1 and 2	52671
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicles 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

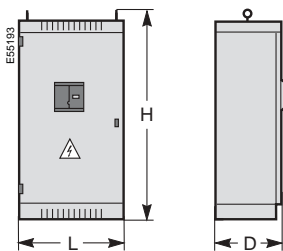
- fixing:
- enclosure: wall mounting or free standing with plinth (accessory)
- cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/60 Hz power supply to supply the contactor coils.

Options

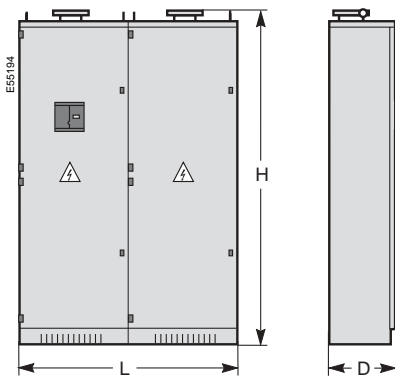
- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 enclosures 1 and 2



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

Overtaxed type		Type	Dimensions (mm)			Weight (kg)
400 V (kvar)	470 V (kvar)		H	L	D	
50	68	Enclosure 1	400	500	250	25
63	85	Enclosure 2	800	500	250	40
75	102	Enclosure 2	800	500	250	45
100	136	Cubicle 1	1050	550	500	70
125	170	Cubicle 2	1050	800	500	90
150	204	Cubicle 3	2100	800	500	120
200	272	Cubicle 3	2100	800	500	140
250	340	Cubicle 3	2100	800	500	150
300	408	Cubicle 4	2100	1600	500	240
350	476	Cubicle 4	2100	1600	500	260
400	544	Cubicle 4	2100	1600	500	260
450	612	Cubicle 4	2100	1600	500	300
500	680	Cubicle 4	2100	1600	500	320

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings.



Rectimat 2 enclosure 1



Rectimat 2 cubicle 1



Rectimat 2 cubicle 3

Standard type

No polluted network (Gh/Sn ≤ 15 %)

Rectimat 2				
440 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
45	3 x 15	Enclosure 1	NS100	73391014
60	4 x 15	Enclosure 2	NS160	73391015
75	5 x 15	Enclosure 2	NS160	73391016
90	6 x 15	Cubicle 1	NS250	73391017
105	7 x 15	Cubicle 1	NS250	73391018
120	8 x 15	Cubicle 2	NS250	73391019
135	9 x 15	Cubicle 2	NS250	73391020
150	5 x 30	Cubicle 2	NS400	73391021
180	6 x 30	Cubicle 2	NS400	73391022
210	7 x 30	Cubicle 3	NS400	73391023
240	8 x 30	Cubicle 3	NS630	73391024
270	9 x 30	Cubicle 3	NS630	73391025
300	5 x 60	Cubicle 3	NS630	73391026
360	6 x 60	Cubicle 4	C801	73391027
420	7 x 60	Cubicle 4	C801	73391028
480	8 x 60	Cubicle 4	C1001	73391029
540	9 x 60	Cubicle 4	C1001	73391030
600	10 x 60	Cubicle 4	C1251	73391031

(1) out of supply

Technical data

- capacitor rated voltage: 470 V, three-phase 60 Hz
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0.69 kV
 - withstand 60 Hz 1 min: 2.5 kV.
- maximum permissible current: 1.3 I_n (440 V)
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 517 V
- temperature class (400 V):
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 440/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

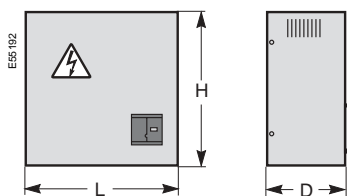
Accessories for Rectimat 2	Ref.
Free-standing plinth for enclosures 1 and 2	52671
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicles 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

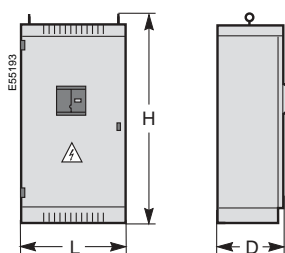
- fixing:
 - enclosure: wall mounting or free standing with plinth (accessory)
 - cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/60 Hz power supply to supply the contactor coils.

Options

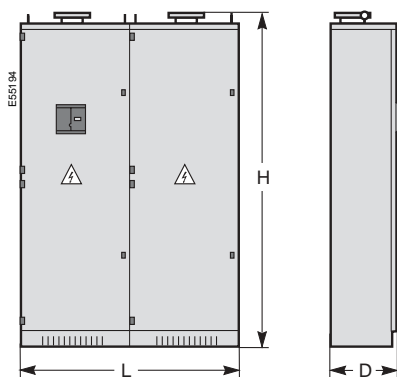
- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 enclosure 1 and 2



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

Standard type 440 V (kvar)	Type	Dimensions (mm)			Weight (kg)
		H	L	D	
45	Enclosure 1	400	500	250	25
60	Enclosure 2	800	500	250	40
75	Enclosure 2	800	500	250	45
90	Cubicle 1	1050	550	500	60
105	Cubicle 1	1050	550	500	70
120	Cubicle 2	1050	800	500	80
135	Cubicle 2	1050	800	500	80
150	Cubicle 2	1050	800	500	90
180	Cubicle 2	1050	800	500	90
210	Cubicle 3	2100	800	500	120
240	Cubicle 3	2100	800	500	130
270	Cubicle 3	2100	800	500	140
300	Cubicle 3	2100	800	500	150
360	Cubicle 4	2100	1600	500	240
420	Cubicle 4	2100	1600	500	260
480	Cubicle 4	2100	1600	500	280
540	Cubicle 4	2100	1600	500	300
600	Cubicle 4	2100	1600	500	320

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings.



Rectimat 2 enclosure 2



Rectimat 2 cubicle 1



Rectimat 2 cubicle 3

Overtaxed type

Polluted network (15 % < Gh/Sn ≤ 25 %)

Rectimat 2					
440 V (kvar)	525 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
50	72	4 x 12.5	Enclosure 1	NS100	73391050
63	90	5 x 12.5	Enclosure 2	NS160	73391051
75	108	6 x 12.5	Enclosure 2	NS160	73391052
100	144	4 x 25	Cubicle 1	NS250	73391053
125	180	5 x 25	Cubicle 2	NS250	73391054
150	216	6 x 25	Cubicle 3	NS400	73391055
200	288	4 x 50	Cubicle 3	NS400	73391056
250	360	5 x 50	Cubicle 3	NS630	73391057
300	432	6 x 50	Cubicle 4	NS630	73391058
350	504	7 x 50	Cubicle 4	C801	73391059
400	576	8 x 50	Cubicle 4	C801	73391060
450	648	9 x 50	Cubicle 4	C1001	73391061
500	720	10 x 50	Cubicle 4	C1001	73391062

(1) out of supply

Technical data

- capacitor rated voltage: 525 V, three-phase 60 Hz
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0.69 kV
 - withstand 60 Hz 1 min: 2.5 kV.
- maximum permissible current: 1.43 In (440 V).
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 577 V
- temperature class (400 V):
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 440/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

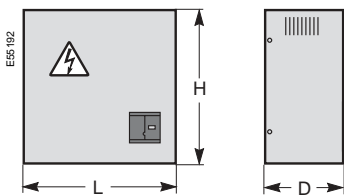
Accessories for Rectimat 2	Ref.
Free-standing plinth for enclosures 1 and 2	52671
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicles 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

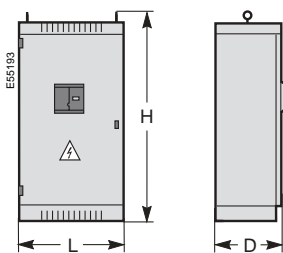
- fixing:
 - enclosure: wall mounting or free standing with plinth (accessory)
 - cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/60 Hz power supply to supply the contactor coils.

Options

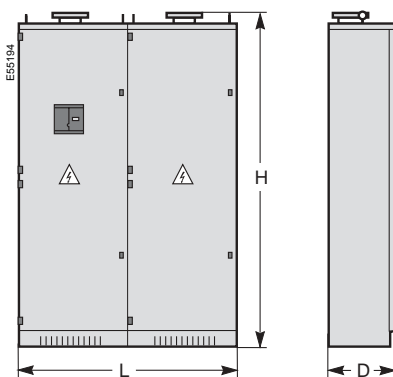
- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 enclosure 2



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

Overrated type		Type	Dimensions (mm)			Weight (kg)
440 V (kvar)	525 V (kvar)		H	L	D	
50	72	Enclosure 1	400	500	250	25
63	90	Enclosure 2	800	500	250	40
75	108	Enclosure 2	800	500	250	45
100	144	Cubicle 1	1050	550	500	70
125	180	Cubicle 2	1050	800	500	90
150	216	Cubicle 3	2100	800	500	120
200	288	Cubicle 3	2100	800	500	140
250	360	Cubicle 3	2100	800	500	150
300	432	Cubicle 4	2100	1600	500	240
350	504	Cubicle 4	2100	1600	500	260
400	576	Cubicle 4	2100	1600	500	280
450	648	Cubicle 4	2100	1600	500	300
500	720	Cubicle 4	2100	1600	500	320

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings.



Rectimat 2 enclosure 1



Rectimat 2 cubicle 1



Rectimat 2 cubicle 3

Standard type

No polluted network (Gh/Sn ≤ 15 %)

Rectimat 2				
480 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
45	3 x 15	Enclosure 1	NS100	73391032
60	4 x 15	Enclosure 2	NS100	73391033
75	5 x 15	Enclosure 2	NS160	73391034
90	6 x 15	Cubicle 1	NS160	73391035
105	7 x 15	Cubicle 1	NS250	73391036
120	8 x 15	Cubicle 2	NS250	73391037
135	9 x 15	Cubicle 2	NS250	73391038
150	5 x 30	Cubicle 2	NS250	73391039
180	6 x 30	Cubicle 2	NS400	73391040
210	7 x 30	Cubicle 3	NS400	73391041
240	8 x 30	Cubicle 3	NS400	73391042
270	9 x 30	Cubicle 3	NS630	73391043
300	5 x 60	Cubicle 3	NS630	73391044
360	6 x 60	Cubicle 4	NS630	73391045
420	7 x 60	Cubicle 4	C801	73391046
480	8 x 60	Cubicle 4	C801	73391047
540	9 x 60	Cubicle 4	C1001	73391048
600	10 x 60	Cubicle 4	C1001	73391049

(1) out of supply

Technical data

- capacitor rated voltage: 525 V, three-phase 60 Hz
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0.69 kV
 - withstand 60 Hz 1 min: 2.5 kV.
- maximum permissible current: 1.3 In (480 V)
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 577 V
- temperature class (400 V):
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 480/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

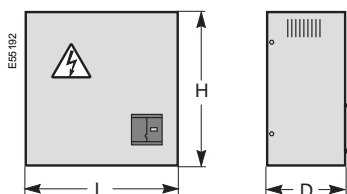
Accessories for Rectimat 2	Ref.
Free-standing plinth for enclosures 1 and 2	52671
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicles 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

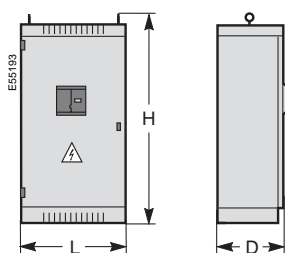
- fixing:
- enclosure: wall mounting or free standing with plinth (accessory)
- cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/60 Hz power supply to supply the contactor coils.

Options

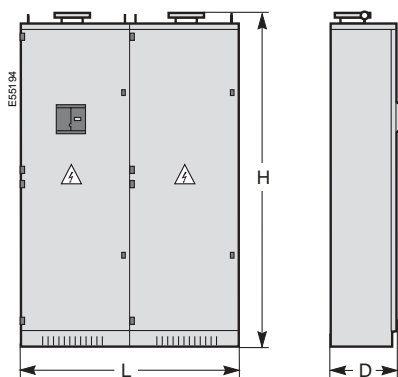
- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 enclosures 1 and 2



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

Standard type 480 V (kvar)	Type	Dimensions (mm)			Weight (kg)
		H	L	D	
45	Enclosure 1	400	500	250	25
60	Enclosure 2	800	500	250	40
75	Enclosure 2	800	500	250	45
90	Cubicle 1	1050	550	500	60
105	Cubicle 1	1050	550	500	70
120	Cubicle 2	1050	800	500	80
135	Cubicle 2	1050	800	500	80
150	Cubicle 2	1050	800	500	90
180	Cubicle 2	1050	800	500	90
210	Cubicle 3	2100	800	500	120
240	Cubicle 3	2100	800	500	130
270	Cubicle 3	2100	800	500	140
300	Cubicle 3	2100	800	500	150
360	Cubicle 4	2100	1600	500	240
420	Cubicle 4	2100	1600	500	260
480	Cubicle 4	2100	1600	500	280
540	Cubicle 4	2100	1600	500	300
600	Cubicle 4	2100	1600	500	320

The Rectimat 2 capacitor banks are automatic compensation equipment in the form of an enclosure or a cubicle according to the power ratings.



Rectimat 2 enclosure 2



Rectimat 2 cubicle 1



Rectimat 2 cubicle 3

Overtaxed type

Polluted network (15 % < Gh/Sn ≤ 25 %)

Rectimat 2					
480 V (kvar)	525 V (kvar)	Step	Type	Recommended circuit breaker (1)	Ref.
50	60	4 x 12.5	Enclosure 1	NS100	73391063
63	75	5 x 12.5	Enclosure 2	NS160	73391064
75	90	6 x 12.5	Enclosure 2	NS160	73391065
100	120	4 x 25	Cubicle 1	NS250	73391066
125	150	5 x 25	Cubicle 2	NS250	73391067
150	180	6 x 25	Cubicle 3	NS400	73391068
200	240	4 x 50	Cubicle 3	NS400	73391069
250	300	5 x 50	Cubicle 3	NS630	73391070
300	360	6 x 50	Cubicle 4	NS630	73391071
350	420	7 x 50	Cubicle 4	C801	73391072
400	480	8 x 50	Cubicle 4	C801	73391073
450	540	9 x 50	Cubicle 4	C1001	73391074
500	600	10 x 50	Cubicle 4	C1001	73391075

(1) out of supply

Technical data

- capacitor rated voltage: 525 V, three-phase 60 Hz
- capacitance value tolerance: 0, +10 %
- insulation level:
 - 0.69 kV
 - withstand 60 Hz 1 min: 2.5 kV.
- maximum permissible current: 1.43 In (480 V).
- maximum permissible voltage (8 hours over 24 hours as in IEC 60831): 577 V
- temperature class (400 V):
 - maximum temperature: 40 °C
 - average temperature over 24 hrs: 35 °C
 - average annual temperature: 25 °C
 - minimum temperature: -5 °C.
- degree of protection: IP31 (IP21D if the roof is ventilated)
- transformer 480/230 V to feed auxiliary supplies
- protection against direct contact (opened door)
- colour:
 - metal sheet: RAL 9002
 - bottom blanking plate: RAL 7021.
- standards: IEC 60439-1, EN 60439-1.

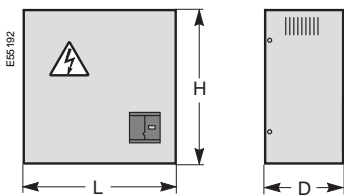
Accessories for Rectimat 2	Ref.
Free-standing plinth for enclosures 1 and 2	52671
Plinth H = 250 for cubicle 1	52672
Plinth H = 250 for cubicles 2 and 3	52673
Plinth H = 250 for cubicle 4	2 x 52673

Installation

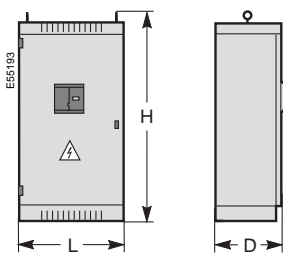
- fixing:
 - enclosure: wall mounting or free standing with plinth (accessory)
 - cubicle: free standing cubicle or free standing with plinth (accessory).
- bottom connection of power cables to the busbar pads
- the CT (5 VA sec. 5 A), not supplied, is to be placed upstream from the capacitor bank and loads
- it is not necessary to provide a 230 V/60 Hz power supply to supply the contactor coils.

Options

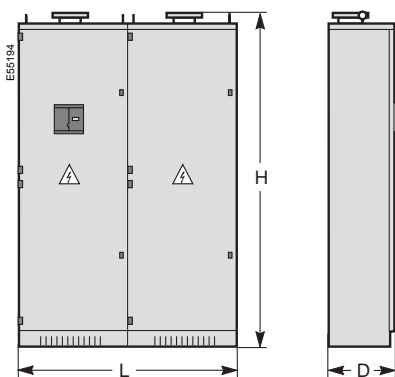
- incoming circuit-breaker
- fixed base compensation
- extension
- load shedding (main-standby)
- top connection
- please consult us for other options.



Rectimat 2 enclosures 1 and 2



Rectimat 2 cubicles 1 and 2



Rectimat 2 cubicles 3 and 4

Dimensions

Overrated type		Type	Dimensions (mm)			Weight (kg)
480 V (kvar)	525 V (kvar)		H	L	D	
50	60	Enclosure 1	400	500	250	25
63	75	Enclosure 2	800	500	250	40
75	90	Enclosure 2	800	500	250	45
100	120	Cubicle 1	1050	550	500	70
125	150	Cubicle 2	1050	800	500	90
150	180	Cubicle 3	2100	800	500	120
200	240	Cubicle 3	2100	800	500	140
250	300	Cubicle 3	2100	800	500	150
300	360	Cubicle 4	2100	1600	500	240
350	420	Cubicle 4	2100	1600	500	260
400	480	Cubicle 4	2100	1600	500	280
450	540	Cubicle 4	2100	1600	500	300
500	600	Cubicle 4	2100	1600	500	320

The Varlogic controllers permanently measure the reactive power of the installation and control connection and disconnection of capacitor steps in order to obtain the required power factor.



Varlogic R6



Varlogic R12



Varlogic RC12

Technical data

■ general data

- accuracy: 2,5 %
- operating temperature: 0...50 °C
- storage temperature: - 20° C...60 °C
- colour: RAL 7021
- standards:
 - EMC: EN 50082-2, EN 50081-2
 - electrical: IEC 60664, VDE 0110, IEC 61010-1, EN 61010-1.
- panel mounting
- mounting on 35 mm DIN rail (EN 50022)
- protection class in panel mounting: IP40
- 7 segment display (R6 type)
- 16 character display (R12 and RC12 types) (french, english, german, spanish)
- alarm contact
- alarm message memory and reset function.

■ inputs

- phase to phase or phase to neutral connection
- insensitive to CT polarity
- insensitive to phase rotation polarity
- tripping on microcuts in excess of 15 ms
- current input: CT.../ 5 A class 1
- minimum current at CT secondary
 - R6, R12 type: 0.18 A
 - RC12 type: 0.036 A.

■ outputs

- potential free output contacts:
 - AC: 2 A/400 V, 2 A/250 V, 2 A/120 V
 - DC: 0.3 A/110 V, 0.6 A/60 V, 2 A/24 V.

■ settings and parameters

- target cos ϕ setting: 0.80 ind...0.9 cap
- automatic C/K ratio search feature
- manual setting of C/K: 0...1.99
- regulation programs:
 - normal (2 + linear)
 - circular A (circular)
 - circular B (1 + circular)
 - S (linear).
- step combinations:
 - 1.1.1.1.1.1
 - 1.2.2.2.2.2
 - 1.2.3.4.4.4
 - 1.1.2.2.2.2
 - 1.2.3.3.3.3
 - 1.2.4.4.4.4
 - 1.1.2.3.3.3
- delay between successive connections of the same step:
 - R6, R12 type: 0.18 A
 - RC12 type: 0.036 A.
- step configuration programming (fixed / auto / not used) (RC12)
- generator application (RC12)
- manual control for operating test.

Type	Number of step output contacts	Supply voltage (V)	Measuring voltage (V)	ref.
R6	6	220/240-380/415	220/240-380/415	52400
R12	12	220/240	99...456 V	52401
RC12	12	220/240	99...456 V	52403
Information supplied				
				R6
				R12
				RC12
Cos φ				■
Connected steps				■
Period before switching				■
Step output contact configuration				■
Step output status (capacitance loss monitoring)				■
Load and reactive currents				■
Total voltage harmonic distortion THD (U)				■
Voltage, temperature, powers (S, P, Q), Irms/I _n ("expert" level)				■
Voltage harmonic spectrum (orders 3, 5, 7, 11, 13)				■
Alarms		Automation		R6
				R12
				RC12
Low power factor				■
Hunting	unstable regulation			■
Abnormal cos φ	< 0.5 ind or 0.8 cap			■
Overcompensation				■
Frequency not detected during startup	+/- 1 Hz	regulation is stopped		■
	+/- 2 Hz	regulation is stopped		■
Overcurrent	> 6 A within 180 s			■
Voltage low	< 0.8 U _o within 1 s	disconnection (2)		■
Voltage high	> 1.2 U _o within 60 s			■
Overvoltage	> 1.2 U _o within 60 s	disconnection (2)		■
	> 1.1 U _o within 30 min	disconnection (2)		■
Overtemperature	> 35 °C (1)	fan contact		■
	> 50 °C (1)	disconnection (2)		■
Total harmonic distortion	> 7 % within 120 s (1)			■
Current overload	> 1.5 within 120 s (1)	disconnection (2)		■
Capacitor output low	significant capacitance loss			■
Warnings				R6
				R12
				RC12
Low current	< 0.24 A within 2 s			■
	< 0.05 A within 2 s			■
High current	> 5.50 A within 30 s			■
Voltage not detected				■

U_o: input voltage (measurement)

(1): adjustable threshold

(2): capacitor steps are automatically reconnected after fault clearance and a safety delay

Schneider Electric Industries SAS

Rectiphase
BP10
74371 Pringy cedex
France
tél. : (33) 04 50 66 95 00
fax : (33) 04 50 27 24 19

ART 96966

As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.



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