

DATA SHEET

AUTOMATIC CAPACITOR DE-TUNED BANKS

With anti-harmonic reactors 7%



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AUTOMATIC DE-TUNED CAPACITOR BANKS: $p = 7\%$

THDI $\leq 70\%$

400V-50HZ

General characteristics

| | |
|------------------------------|----------------------------------------------------------------------------------------|
| harmonic pollution rate THDI | $\leq 70\%$ |
| harmonic pollution rate THDV | $\leq 6\%$ |
| Network pollution level | polluted |
| Network voltage | 400/415V |
| Battery temperature | -5 à 40°C |
| Maximum current overload | 1.3xIn |
| Maximum voltage overload | 1.1xUn |
| Degrees of protection | IP55 (Cabinet height is equal to 1800 mm) IP33 (Cabinet height is less than 1800mm) |
| Capacitor voltage rating | Three-phase capacitors with Un=480V |



Blocking reactors

| | |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Blocking factor | $p = 7\%$ |
| Nominal voltage | 400V |
| Insulation voltage | 3000 VAC/1min |
| Insulation class | 40°C/F |
| Tuning frequency | 189Hz |
| Dielectric loss (Depends on the power of the steps used) | Blocking reactors 10kVAR: 56W Blocking reactors 12.5kVAR: 80W Blocking reactors 25kVAR: 125W Blocking reactors 50kVAR: 221W |
| Protection against overheating Standard | 132°C EN 61558-2-20 |

QUALITY AND TEST

| | |
|----------------|---------------------------------------------------------|
| Standard(bank) | CEI 60831-1 ; CEI 60831-2 ; UL-810 ; CEI 61921 |
|----------------|---------------------------------------------------------|

Cabinet characteristic

Type of mounting
Color
Steel sheet

Interior
RAL 7035 (grey)

- Frame: 1.5mm
- Panel: 1.5mm
- Door: 2mm
- Plinth: 2mm

Other characteristics

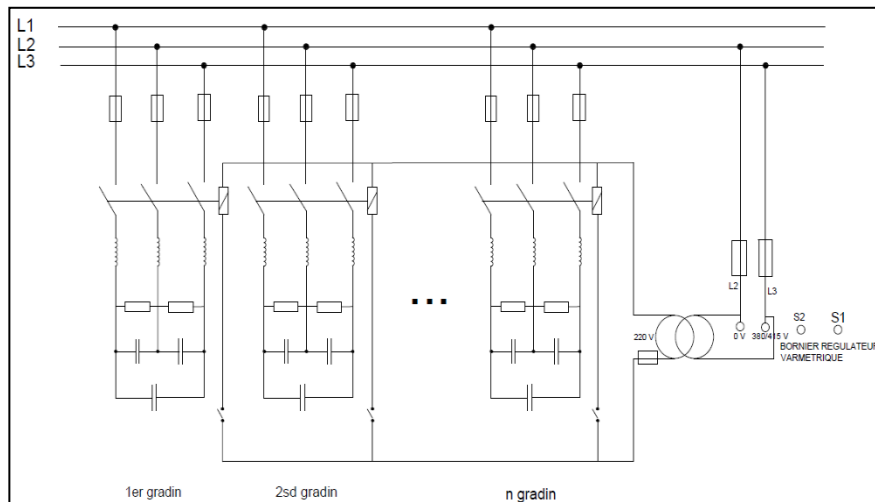
(Cabinet height is less than 1800mm)

- Welded frame construction
- Closing with three screws
- Foamed in the door

(Cabinet height is equal to 1800mm)

- Welded frame construction
- Foamed in the door / rear panel PU waterproof seal
- Polyamide handle lock (3 point locking, key 333)
- Multiple assembly possible
- Removable side panels
- Plinth and cover options

Wiring diagram



Internal components

| | |
|--------------|--------------------------------------------------------------------------------------------------------|
| Installation | Vertical. Interior installation, in a position favorable to ventilation |
| Ventilation | Forced ventilation, they are designed to allow the equipment proper ventilation of internal components |
| Regulator | The automatic correction regulator always maintains the programmed $\cos \phi$ value. |
| Fuses | The capacitors are protected by high speed fuses. (Other protection is on request). |
| Contactor | Each step is connected / disconnected by a contactor (class AC6-b) able to offer a high reliability. |

Fuses

| | |
|-----------------------|--------------------------------------|
| Type of fuses | fuses NH00 series gG for each module |
| Breaking capacity | High capacity 120kA |
| Operating temperature | -15 à 50°C |
| Standards | IEC 60269 |

(Made in Europe)

Control circuit transformer(s)

| | |
|-------------------|--------------------|
| Primary voltage | 400V |
| Secondary voltage | 230V |
| Standards | EN 60076, EN 61558 |

(Made in Europe)

Capacitors

| | |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Capacitor Technology | Auto healing dry type resin capacitor equipped with an anti burst pressure system and discharge resistor, protected by an inert N2 gas. . |
| Capacitor voltage rating | Three-phase capacitors with $U_n=480V$ |
| Tolerance on the capacitor value | -5 / +10 % |
| Maximum current overload | 1.8 x I_n |
| Transient current | 250 I_n |
| Maximum voltage overload | 1.1 x U_n - 8 hours per day |
| Altitude | <4000m |
| Test voltage (Terminal-terminal) | 2.15* U_n , AC 2s |
| Test voltage (Terminal-case) | 3.9 KV, AC 2s |
| Dielectric loss | <0.2 W / kVAR |
| Min/Max temperature | -40 à 60°C |
| Maximum humidity | 95 % non-condensing |
| Protection class | IP20 |
| Standards (capacitors) | CEI 60831-1 ; CEI 60831-2 ; UL-810 |

(Made in Europe)

Contactors

| | |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | Contactor for capacitive load (AC6b) |
| Voltage | 400-440V |
| Auxiliary | 230V |
| Maximum operating rate | <ul style="list-style-type: none"> 12.5 kVAR /25 kVAR/33.3 kVAR : 240 hours of operation 40 kVAR /60 kVAR : 100 hours of operation |
| Lifetime | <ul style="list-style-type: none"> 12.5 kVAR /25 kVAR : 200000 operation 33.3 kVAR /40 kVAR /60 kVAR : 100000 operation |
| Power (Depends on the power of the steps) | 12.5kVAR / 25 kVAR / 33.3 kVAR /40 kVAR /60 kVAR |
| Standards | IEC 60947-1,2 |

(Made in Europe)

DISCONNECTORS-SWITCHES (OPTIONAL)

| CURRENT (A) | Power | Rated insulation voltage (Ui) | Rated impulse withstand voltage | Presumed short circuit current | Standards |
|-------------|-------|-------------------------------|---------------------------------|--------------------------------|-------------|
| 63 | 30 | 800 | 8KV | 50KA-eff | CEI 60947-3 |
| 80 | 37 | 800 | 8KV | 50KA-eff | CEI 60947-3 |
| 100 | 45 | 800 | 8KV | 25KA-eff | CEI 60947-3 |
| 125 | 55 | 800 | 8KV | 100KA-eff | CEI 60947-3 |
| 160 | 75 | 800 | 8KV | 100KA-eff | CEI 60947-3 |
| 200 | 90 | 800 | 8KV | 100KA-eff | CEI 60947-3 |
| 250 | 115 | 800 | 8KV | 80KA-eff | CEI 60947-3 |
| 315 | 145 | 1000 | 12KV | 50KA-eff | CEI 60947-3 |
| 400 | 185 | 1000 | 12KV | 100KA-eff | CEI 60947-3 |
| 500 | 230 | 1000 | 12KV | 100KA-eff | CEI 60947-3 |
| 630 | 290 | 1000 | 12KV | 70KA-eff | CEI 60947-3 |
| 800 | 365 | 1000 | 12KV | 50KA-eff | CEI 60947-3 |
| 1000 | 460 | 1000 | 12KV | 100KA-eff | CEI 60947-3 |
| 1250 | 579 | 1000 | 12KV | 100KA-eff | CEI 60947-3 |
| 1800 | 610 | 1000 | 12KV | 100KA-eff | CEI 60947-3 |
| 2000 | 745 | 1000 | 12KV | 100KA-eff | CEI 60947-3 |
| 2500 | 1083 | 1000 | 12KV | 100KA-eff | CEI 60947-3 |
| 3200 | 1556 | 1000 | 12KV | 100KA-eff | CEI 60947-3 |

(Made in Europe)

| Regulators | RG-T (STANDARD) | RGI-S (On request) | RG-BS (On request) |
|--------------------------------------|----------------------------------------------------------------|----------------------------------------------|----------------------------------------|
| Type | | Var-métrique | |
| Dimensions | 144*144 mm PR16 | 144*144 mm | 96*96mm PR19 |
| Protection class | IP 40 Front pannel | IP 54 Front pannel | IP 40 Front pannel |
| Precision | 1%±1 digits (V, I, COS) ; 2%±1 digits (W, Var, VA, harmonique) | | |
| Overvoltage setting | 475 VAC | | 0-500 VAC |
| Current range | | 50mA-5.5A (other current range on request) | |
| Measuring range with transformer | 50mA-10KA Primary of transformer 5...10000/5A | 50mA-10KA Transformer ratio 1-2000 | 50mA-10KA Transformer ratio 1-2000 |
| Input load | < 2VA courant, < 3VA Voltage | | |
| Cos ϕ setting | 0.85<cos ϕ <1 inductive | 0.8<cos ϕ <1 inductive/capacitive | 0.8<cos ϕ <1 inductive/capacitive |
| Setting of C/K | 0.02-1.00 | | |
| Delay between steps | 2-1800 s a switch for on / off separately | | |
| Interface/Protocole Communication | | RS-585 Modbus RTU | RS-585 Modbus RTU |
| THD- V-Alarm programmable | | • | • |
| Discharge time programmable | | • | • |
| Overvoltage alarm programmable | • | • | • |
| Automatic calculation of steps | | • | • |
| Energy measurement | | • | • |
| Display of parameters for each phase | | • | • |
| Alarm contact output | | • | • |
| POWER SUPPLY | | • | • |
| Operating voltage | 400VAC ±10% | 150-525 VAC ±10% | 400VAC ±10% |
| Operating frequency | | 50HZ/60HZ | |
| Power consumption | <10 VA | <25VA | <10 VA |
| Number of steps | 6 / 8 / 12 | 6/9/12 | 6/8//12 |
| Operating temperature | -5...+55°C | -20...+70°C | -5...+55°C |
| Ambient humidity | 85% | 95% | 85% |
| Mounting | Front panel mounting /Socket with screw terminal | | |
| Types of connection | Phase2/phase3, 1 current transformator on phase1 | All type of connexion | All type of connexion |

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TECHNICAL DETAILS

| Code Product | Power (KVAR) (400V) | Current (A) | (Power of steps) | Cable entry | Switches (A) (Option) | Dimensions | | |
|-----------------|---------------------------|----------------|-------------------------------------------|----------------|-----------------------------|------------|-------|-------|
| | Fréquence==50HZ | | | | | Height | Width | Depth |
| BS7-20 | 20 | 29 | 2x5 kVAr +1x10 kVAr | Haut | 63 | 1050 | 500 | 400 |
| BS7-25 | 25 | 36 | 1x5 kVAr +2x10 kVAr | Haut | 63 | 1050 | 500 | 400 |
| BS7-30 | 30 | 43 | 2x5 kVAr +2x10 kVAr | Haut | 63 | 1050 | 500 | 400 |
| BS7-35 | 35 | 51 | 1x5 kVAr +3x10 kVAr | Haut | 63 | 1050 | 500 | 400 |
| BS7-40 | 40 | 58 | 2x5 kVAr +3x10 kVAr | Haut | 80 | 1250 | 500 | 400 |
| BS7-45 | 45 | 65 | 1x5 kVAr +4x10 kVAr | Haut | 125 | 1450 | 500 | 400 |
| BS7-50 | 50 | 72 | 1x5 kVAr +2x10 kVAr +1x25 kVAr | Haut | 125 | 1450 | 500 | 400 |
| BS7-55 | 55 | 80 | 3x10 kVAr +1x25 kVAr | Haut | 125 | 1450 | 500 | 400 |
| BS7-60 | 60 | 87 | 1x10 kVAr +2x25 kVAr | Haut | 160 | 1450 | 500 | 400 |
| BS7-65 | 65 | 94 | 1x5 kVAr +1x10 kVAr +2x25 kVAr | Haut | 160 | 1450 | 500 | 400 |
| BS7-70 | 70 | 101 | 2x10 kVAr +2x25 kVAr | Haut | 160 | 1450 | 500 | 400 |
| BS7-75 | 75 | 108 | 2X12.5 kVAr+2X25 kVAr | Haut | 160 | 1450 | 500 | 400 |
| BS7-80 | 80 | 115 | 3x10 kVAr+2x25 kVAr | Bas | 160 | 1800 | 600 | 600 |
| BS7-85 | 85 | 122 | 1x10 kVAr+3x25 kVAr | Bas | 160 | 1800 | 600 | 600 |
| BS7-90 | 90 | 130 | 1x5 kVAr+1x10 kVAr+3x25 kVAr | Bas | 250 | 1800 | 600 | 600 |
| BS7-95 | 95 | 137 | 2x10 kVAr +3x25 kVAr | Bas | 250 | 1800 | 600 | 600 |
| BS7-100 | 100 | 144 | 2x12.5 kVAr +3x25 kVAr | Bas | 250 | 1800 | 600 | 600 |
| BS7-110 | 110 | 158 | 1x10 kVAr +2x25 kVAr +1x50 kVAr | Bas | 250 | 1800 | 600 | 600 |
| BS7-120 | 120 | 172 | 2x10 kVAr +2x25 kVAr +1x50 kVAr | Bas | 250 | 1800 | 600 | 600 |
| BS7-130 | 130 | 187 | 1x5 kVAr +5x25 kVAr | Bas | 315 | 1800 | 600 | 600 |
| BS7-140 | 140 | 202 | 1x5 kVAr+1x10 kVAr+1x25 kVAr +2x50 kVAr | Bas | 315 | 1800 | 800 | 600 |
| BS7-150 | 150 | 217 | 2x25 kVAr +2x50 kVAr | Bas | 400 | 1800 | 800 | 600 |
| BS7-160 | 160 | 231 | 1x10 kVAr +2x25 kVAr +2x50 kVAr | Bas | 400 | 1800 | 800 | 600 |
| BS7-170 | 170 | 245 | 2x10 kVAr +2x25 kVAr +2x50 kVAr | Bas | 400 | 1800 | 800 | 600 |
| BS7-180 | 180 | 259 | 1x5 kVAr +3x25 kVAr +2x50 kVAr | Bas | 400 | 1800 | 800 | 600 |
| BS7-190 | 190 | 274 | 1x5 kVAr +1x10 kVAr +1x25 kVAr +3x50 kVAr | Bas | 500 | 1800 | 800 | 600 |
| BS7-200 | 200 | 289 | 2x25 kVAr +3x50 kVAr | Bas | 500 | 1800 | 800 | 600 |
| BS7-250 | 250 | 361 | 2x25 kVAr +4x50 kVAr | Bas | 630 | 1800 | 1000 | 600 |
| BS7-300 | 300 | 433 | 2x25 kVAr +3x50 kVAr +1x100 kVAr | Bas | 800 | 1800 | 1000 | 600 |
| BS7-350 | 350 | 505 | 2x25 kVAr +6x50 kVAr | Bas | 800 | 1800 | 1200 | 600 |
| BS7-400 | 400 | 577 | 2x25 kVAr +5x50 kVAr +1x100 kVAr | Bas | 1000 | 1800 | 1200 | 600 |
| BS7-420 | 420 | 606 | 2x10 kVAr +4x50 kVAr +2x100 kVAr | Bas | 1000 | 1800 | 1600 | 600 |
| BS7-450 | 450 | 650 | 2x25 kVAr +4x50 kVAr +2x100 kVAr | Bas | 1000 | 1800 | 1600 | 600 |
| BS7-500 | 500 | 721 | 2x25 kVAr +3x50 kVAr +3x100 kVAr | Bas | 1250 | 1800 | 2000 | 600 |
| BS7-550 | 550 | 793 | 2x25 kVAr +2x50 kVAr +4x100 kVAr | Bas | 1250 | 1800 | 2000 | 600 |
| BS7-600 | 600 | 865 | 2x25 kVAr +9x50 kVAr +1x100 kVAr | Bas | 1800 | 1800 | 2000 | 600 |

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| Code Produit | Power (kVAr) (400V) | Current (A) | (Power of steps) | Cable entry | Switchs (A) (Option) | Dimensions | | |
|-----------------|---------------------------|----------------|------------------------------------|----------------|----------------------------|------------|-------|-------|
| | Frequency==50HZ | | | | | Height | Width | Depth |
| BS7-650 | 650 | 937 | 2X25 kVAr + 8X50 kVAr + 2X100 kVAr | Bas | 2000 | 1800 | 2000 | 600 |
| BS7-700 | 700 | 1009 | 2X25 kVAr + 7X50 kVAr + 3X100 kVAr | Bas | 2000 | 1800 | 2000 | 600 |
| BS7-750 | 750 | 1081 | 7X50 kVAr + 4x100 kVAr | Bas | 2000 | 1800 | 2400 | 600 |
| BS7-800 | 800 | 1153 | 2X25 kVAr + 5X50 kVAr + 5X100 kVAr | Bas | 2500 | 1800 | 2400 | 600 |
| BS7-850 | 850 | 1225 | 2X25 kVAr + 4X50 kVAr + 6X100 kVAr | Bas | 2500 | 1800 | 2400 | 600 |
| BS7-900 | 900 | 1297 | 6X50 kVAr + 6X100 kVAr | Bas | 2500 | 1800 | 3000 | 600 |
| BS7-950 | 950 | 1369 | 5X50 kVAr + 7X100 kVAr | Bas | 2500 | 1800 | 3000 | 600 |
| BS7-1000 | 1000 | 1441 | 6X50 kVAr + 7X100 kVAr | Bas | 2500 | 1800 | 3000 | 600 |
| BS7-1100 | 1100 | 1585 | 2X50 kVAr + 10X100 kVAr | Bas | 3200 | 1800 | 3000 | 600 |
| BS7-1200 | 1200 | 1729 | 3X50 kVAr + 6X100 kVAr +3X150 kVAr | Bas | 3200 | 1800 | 3000 | 600 |
| BS7-1300 | 1300 | 1873 | 2X50 kVAr + 6X100 kVAr +4X150 kVAr | Bas | 3200 | 1800 | 3000 | 600 |
| BS7-1400 | 1400 | 2017 | 2X50 kVAr + 4X100 kVAr +6X150 kVAr | Bas | 3200 | 1800 | 4000 | 600 |
| BS7-1500 | 1500 | 2161 | 2X50 kVAr + 2X100 kVAr +8X150 kVAr | Bas | 3200 | 1800 | 4000 | 600 |

NB: Other power and voltage on request.

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