



Film Capacitors – Power Factor Correction

Key components – Capacitor contactors

Series/Type: B44066S
Ordering code: B44066S...J230/J110/N230/N110
Date: July 2012
Version: 11

Characteristics

- Excellent damping of inrush current
- Improved power quality (e.g. avoidance of voltage sags)
- Longer useful life of main contacts of capacitor contactor
- Soft switching of capacitor and thus longer useful life
- Enhanced mean life expectancy
- Reduced ohmic losses
- Easy access for cable connection
- AC6b utilization category for switching 3-phase capacitors for B44066S****J***
- Approvals
 - cUL approval
 - CCC (China Compulsory Certification) up to 75 kvar



B44066S...J230/J110



B44066S9010J230



B44066S...N230/N110



B44066S1810J230/J110



B44066S1810N230/N110

Series B44066S...J230/J110 for conventional PFC-systems without reactors

| Features | |
|------------------|--|
| Resistors | Tamper-proof and protected |
| Leading contacts | With wiper function |
| Pre-contacts | Snap function |
| Aux-contacts | For all types |
| Usage | In applications with or without reactors |

Series B44066S...N230/N110 for de-tuned PFC-systems with reactors

| Features | |
|-----------------|------------------------------------|
| Aux-contacts | For all types |
| Usage | In applications with reactors only |

| Type / Main contacts | | B44066S1810... | B44066S2410... | B44066S3210... | B44066S5010... |
|---|---|--|--|---|---|
| Capacitor power at 50 °C ■ 380 ... 400 V ■ 415 ... 440 V ■ 660 ... 690 V | kvar | 0 ... 12.5 0 ... 13 0 ... 20 | 10 ... 20 10.5 ... 22 17 ... 33 | 10 ... 25 10.5 ... 27 17 ... 41 | 20 ... 33.3 23 ... 36 36 ... 55 |
| Capacitor power at 60 °C ■ 380 ... 400 V ■ 415 ... 440 V ■ 660 ... 690 V | kvar | 0 ... 12.5 0 ... 13 0 ... 20 | 10 ... 20 10.5 ... 22 17 ... 33 | 10 ... 25 10.5 ... 27 17 ... 41 | 20 ... 33.3 23 ... 36 36 ... 55 |
| Coil operating voltage at 50 Hz ¹⁾ : ■ Type ... 230 ■ Type ... 110 ■ Type ... 400 | V AC | 220 ... 240 110 N/A | 220 ... 240 110 N/A | 220 ... 240 110 380 ... 415 | 220 ... 240 On request N/A |
| Coil operating voltage at 60 Hz ¹⁾ : ■ Type ... 230 ■ Type ... 110 ■ Type ... 400 | V AC | 230 ... 264 110 ... 120 N/A | 230 ... 264 110 ... 120 N/A | 230 ... 264 110 ... 120 400 ... 440 | 230 ... 264 On request N/A |
| Rated op. current AC6b at 50/60 Hz ■ 50 °C ■ 60 °C | A | 0 ... 18 0 ... 18 | 14 ... 28 14 ... 28 | 14 ... 36 14 ... 36 | 30 ... 48 30 ... 48 |
| Power loss contactor at max. rated capacitor current | W | 4.1 | 5.7 | 7.5 | 12.6 |
| Rated insulation voltage | V AC | 690 ¹⁾ | 690 ¹⁾ | 690 ¹⁾ | 690 ¹⁾ |
| Max. frequency of operations: | 1/h | 120 | 120 | 120 | 120 |
| Contact life: ■ without reactors ■ with reactors | Million operations | 0.25 0.40 | 0.15 0.30 | 0.15 0.30 | 0.15 0.30 |
| Cable cross section for contactors without thermal overload relay 1 cable per clamp Main connector ■ Solid or stranded ■ Flexible ■ Flexible with multicore cable end 2 cables per clamp ■ Solid or stranded ■ Flexible | mm ² mm ² mm ² mm ² mm ² | 0.75 – 6 1 – 4 0.75 – 4 6+(1-6) / 4+(0.75-4) 2.5+(0.75-2.5) / 1.5+(0.75-1.5) 6+(1.5-6) / 4+(1-4) 2.5+(0.75-2.5) / 1.5+(0.75-1.5) | 1.5 – 25 2.5 – 16 1.5 – 16 16+(2.5-6) / 10+(4-10) 6+(4-6) / 4+(2.5-4) 16+(2.5-6) / 10+(4-10) 6+(4-6) / 4+(2.5-4) | 1.5 – 25 2.5 – 16 1.5 – 16 16+(2.5-6) / 10+(4-10) 6+(4-6) / 4+(2.5-4) | 4 – 50 10 – 35 6 – 35 50+4 / 35+6 / 25+(6-16) 16+(6-16) / 10+(6-16) 50+(4-10) / 35+(4-16) 25+(4-25) / 16+(4-16) |
| Cables per clamp | | 2 | 2 | 2 | 2 |

1) Suitable at 690 V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $V_{imp} = 8 \text{ kV}$. Data for other conditions on request.

2) Operating range of magnet-coils $0.85 V_s$ (min. value of rated control voltage) up to $1.1 \cdot V_s$ (max. value of rated control voltage).

| Type/Main contacts | | B44066S1810... | B44066S2410... | B44066S3210... | B44066S5010... |
|--|-----------------|--|--|--|---|
| For main connector | | | | | |
| ■ Solid AWG | | 18 – 10 | 16 – 10 | 16 – 10 | 12 – 10 |
| ■ Flexible AWG | | 18 – 10 | 14 – 4 | 14 – 4 | 10 – 0 |
| Cables per clamp | | 2 | 1 | 1 | 1 |
| ■ Solid AWG | mm ² | 10+(16-10) / 12+(18-12) 14+(18-14) / 16+(18-16) | 10+(16-10) / 12+(18-12) 14+(18-14) / 16+(18-16) | 10+(16-10) / 12+(18-12) 14+(18-14) / 16+(18-16) | 10+(12-10) / 12+12 |
| ■ Flexible AWG | mm ² | 10+(14-10) / 12+(18-12) 14+(18-14) / 16+(18-16) | 4+(18-12) / 6+(18-8) 8+(18-8) / 10+(18-12) | 4+(18-12) / 6+(18-8) 8+(18-8) / 10+(18-12) | 1+(12-10) / 2+(8-12) 3+(12-8) / 4+(10-6) |
| Cables per clamp | | 2 | 2 | 2 | 2 |
| Weight including auxiliary contact: | | | | | |
| ■ Type ...N... | kg | 0.26 | 0.51 | 0.51 | 0.88 |
| ■ Type ...J... | | 0.37 | 0.67 | 0.67 | 1.03 |
| Fuses gL (gG) from / to | A | 35 / 63 | 50 / 80 | 63 / 100 | 80 / 160 |
| Auxiliary contacts | | | | | |
| Normal Open (NO) | | 1 | 1 | 1 | 1 |
| Rated insulation voltage | V AC | 690 ²⁾ | 690 ²⁾ | 690 ²⁾ | 690 ²⁾ |
| Rated operational current AC15 at 230 V / 400 V | A | 3 / 2 | 3 / 2 | 3 / 2 | 3 / 2 |
| Rated operational current AC1 at 690 V | A | 10 | 10 | 10 | 10 |

1) Suitable at 690 V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $V_{imp} = 8$ kV.
Data for other conditions on request.

2) Operating range of magnet-coils $0.85 V_s$ (min. value of rated control voltage) up to $1.1 \cdot V_s$ (max. value of rated control voltage).

| Type/Main contacts | | B44066S6210... | B44066S7410... | B44066S9010... | B44066S9910... |
|--|---|---|---|----------------------------------|--|
| Capacitor power at 50 °C ■ 380 ... 400 V ■ 415 ... 440 V ■ 660 ... 690 V | kvar | 20 ... 50 23 ... 53 36 ... 82 | 20 ... 75 23 ... 75 36 ... 120 | 33...80 36...82 57...120 | 33 ... 100 36 ... 103 57 ... 148 |
| Capacitor power at 60 °C ■ 380 ... 400 V ■ 415 ... 440 V ■ 660 ... 690 V | kvar | 20 ... 50 23 ... 53 36 ... 82 | 20 ... 60 23 ... 64 36 ... 100 | 33...75 36...77 57...120 | 33 ... 90 36 ... 93 57 ... 148 |
| Coil operating voltage at 50 Hz ¹⁾ : ■ Type ... 230 ■ Type ... 110 ■ Type ... 400 | V AC | 220 ... 240 110 380 ... 415 | 220 ... 240 110 N/A | 220 ... 240 On request N/A | 220 ... 240 On request N/A |
| Coil operating voltage at 60 Hz ¹⁾ : ■ Type ... 230 ■ Type ... 110 ■ Type ... 400 | V AC | 230 ... 264 110 ... 120 400 ... 440 | 230 ... 264 110 ... 120 N/A | 277 On request N/A | 277 On request N/A |
| Rated op. current AC6b at 50/60 Hz ■ 50 °C ■ 60 °C | A | 30 ... 72 30 ... 72 | 30 ... 108 30 ... 87 | 50 ... 115 50 ... 108 | 50 ... 144 50 ... 130 |
| Power loss contactor at max. rated capacitor current | W | 21 | 38.7 | 29 | 36 |
| Rated insulation voltage | V AC | 690 ¹⁾ | 690 ¹⁾ | 1000 ¹⁾ | 1000 ¹⁾ |
| Max. frequency of operations: | 1/h | 120 | 80 | 80 | 80 |
| Contact life: ■ without reactors ■ with reactors | Million operations | 0.15 0.30 | 0.12 0.20 | 0.12 0.20 | 0.12 0.20 |
| Cable cross section for contactors without thermal overload relay; 1 cable per clamp Main connector ■ Solid or stranded ■ Flexible ■ Flexible with multicore cable end | mm ² mm ² mm ² | 4 – 50 10 – 35 6 – 35 | 4 – 50 10 – 35 6 – 35 | | |
| 2 cables per clamp ■ Solid or stranded | mm ² | 50+4 / 35+6 / 25+(6-16) / 16+(6-16) / 10+(6-16) | 50+4 / 35+6 / 25+(6-16) / 16+(6-16) / 10+(6-16) | Top 0.5–95+10 Below 120 | Top 0.5–95+10 Below 120 |
| ■ Flexible | mm ² | 50+(4-10) / 35+(4-16) / 25+(4-25) / 16+(4-16) | 50+(4-10) / 35+(4-16) / 25+(4-25) / 16+(4-16) | 05–70+10–95 | 05–70+10–95 |
| Cables per clamp For main connector ■ Solid AWG ■ Flexible AWG | mm ² mm ² | 2 12 – 10 10 – 0 | 2 12 – 10 10 – 0 | 1+1 | 1+1 |
| Cables per clamp ■ Solid AWG | mm ² | 1 10+(12-10) / 12+12 | 1 10+(12-10) / 12+12 | Top 18–10 Below – | Top 18–10 Below – |
| ■ Flexible AWG | mm ² | 1+(12-10) / 2+(8-12) / 3+(12-8) / 4+(10-6) | 1+(12-10) / 2+(8-12) / 3+(12-8) / 4+(10-6) | Top 18–30 Below 8–40 | Top 18–30 Below 8–40 |
| Cables per clamp | | 2 | 2 | 1+1 | 1+1 |

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Data for other conditions on request.

2) Operating range of magnet-coils $0.85 V_s$ (min. value of rated control voltage) up to $1.1 \cdot V_s$ (max. value of rated control voltage).

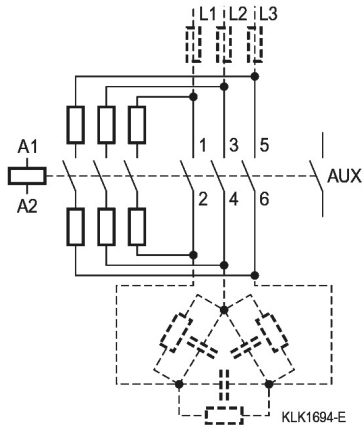
| Type/Main contacts | | B44066S6210... | B44066S7410... | B44066S9010... | B44066S9910... |
|---|------|-------------------|-------------------|-------------------|-------------------|
| Weight including auxiliary contact: | | | | | |
| ■ Type ...N... | kg | 0.88 | 0.88 | 2.2 | 2.23 |
| ■ Type ...J... | | 1.03 | 1.03 | 2.3 | 2.33 |
| Fuses gL (gG) from / to | A | 125/160 | 160/200 | 160/200 | 160/250 |
| Auxiliary contacts | | | | | |
| Normal Open (NO) | | 1 | 1 | 1 | 1 |
| Rated insulation voltage | V AC | 690 ²⁾ | 690 ²⁾ | 690 ²⁾ | 690 ²⁾ |
| Rated operational current AC15 at 230 V / 400 V | A | 3 / 2 | 3 / 2 | 3 / 2 | 3 / 2 |
| Rated operational current AC1 at 690 V | A | 10 | 10 | 10 | 10 |

1) Suitable at 690 V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $V_{imp} = 8$ kV.
Data for other conditions on request.

2) Operating range of magnet-coils $0.85 V_s$ (min. value of rated control voltage) up to $1.1 \cdot V_s$ (max. value of rated control voltage).

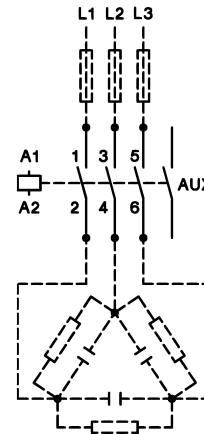
Connection diagram for all types B44066S...J...

(with preload resistors). B44066S1810J230, B44066S9010J230 and B44066S9910J230 with resistors inside housing.



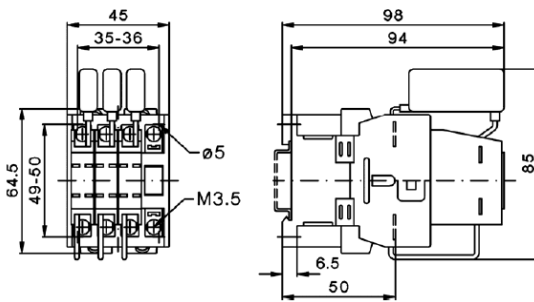
Connection diagram for all types B44066S...N...

(without preload resistors)

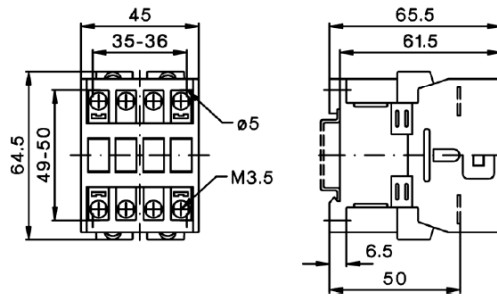


Dimensional drawings

B44066S1810J230, B44066S1810J110
with wires on the bottom only

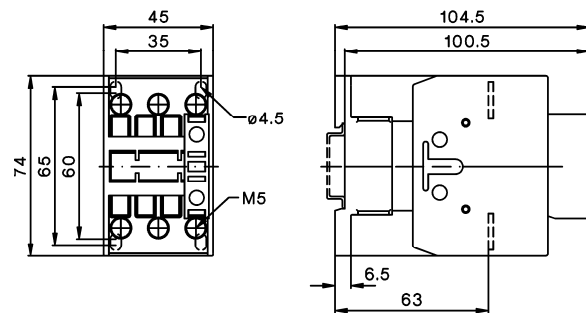
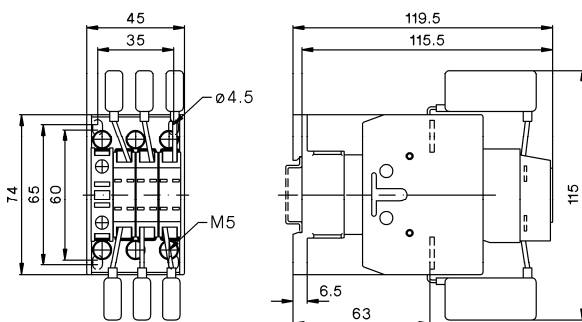


B44066S1810N230



B44066S2410J230, B44066S3210J230
B44066S2410J110, B44066S3210J110

B44066S2410N230, B44066S3210N230

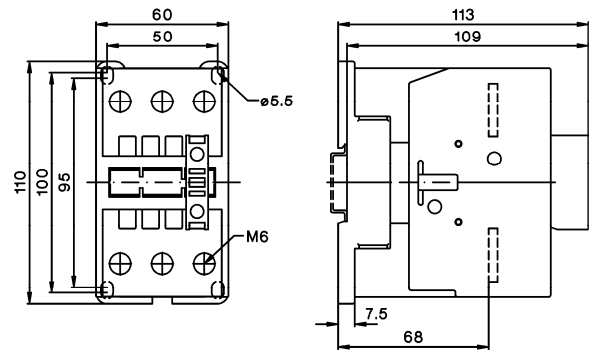
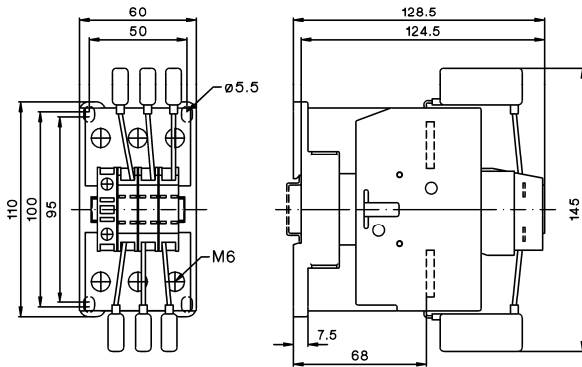


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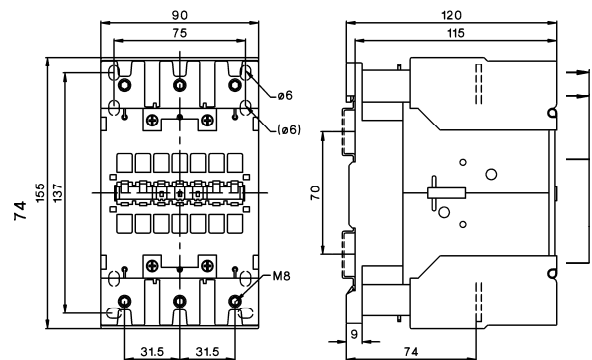
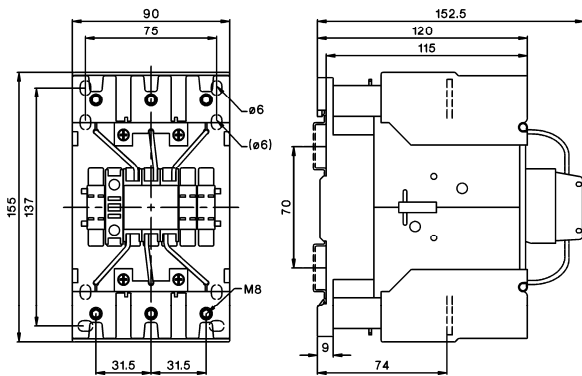
B44066S5010J230, B44066S6210J230,
B44066S6210J110, B44066S7410J230,
B44066S7410J110

B44066S5010N230, B44066S6210N230,
B44066S7410N230



B44066S9010J230, B44066S9910J230

B44066S9010N230, B44066S9910N230



Cautions and warnings

In case auxiliary contacts are used for switching of discharge resistors (not in accordance with IEC 60831 standard), make sure that the current of the discharge resistors is not higher than the rated current of the auxiliary contacts.

Mounting instructions

In the area of capacitor switching contactors, difficultly inflammable and self-extinguishing materials may be used only, because abnormal temperatures within the area of the resistance spirals cannot be excluded.

Note

For detailed information about PFC key components and cautions, refer to the latest version of EPCOS PFC Product Profile.

Please refer to “Installation and Maintenance Instructions for Capacitor Contactors”, available in the Internet. Important: Please note that the „General Safety Recommendations for Power Capacitors“ by ZVEI (German Electrical and Electronic Manufacturers’ Association (ZVEI) have to be observed in addition to the caution guidelines stated in the data sheet (Internet: www.epcos.com/pfc).

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