

Switching Devices - Capacitor Duty Contactors

Soft Switching of Capacitor • Excellent Damping of Inrush • Improved Power Quality • UL Certified

General

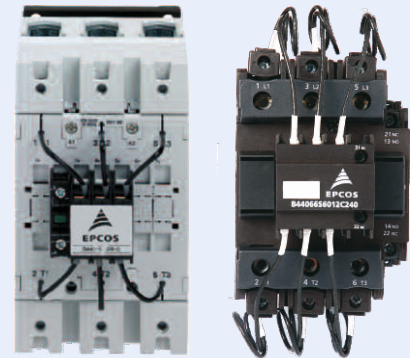
When a capacitor is switched to an AC voltage, the result is a resonant circuit damped to a greater or lesser degree. The switching of capacitors can cause high inrush currents, particularly when they are switched in parallel to others already activated in the power line, and if high short-circuit powers are present on the line.

Capacitor contactors with damping resistors make use of pre-switching auxiliary contacts. They close before the main contacts and pre-load the capacitor thus avoiding current peak values.

This influences positively the life expectancy of the capacitor significantly in addition to the positive impact on the power quality (avoiding transients and voltage sags that otherwise may be caused by switching in capacitors).

The capacitor duty contactors are offered in two versions, viz

- Standard series
- Premium series (imported)



Applications

- Damping of inrush current in low-voltage PFC systems
- For PFC systems with and without reactors

Features

- Excellent damping of inrush current
- Improved power quality (e.g. avoidance of voltage sags)
- Longer useful service life of main contacts of capacitor contactor
- Soft switching of capacitor and thus longer useful service life
- Enhanced mean life expectancy of PFC system
- Reduced ohmic losses
- Leading contacts with wiper function
- Tamper-proof and protected resistors
- Easy access for cable connection
- Voltage range: 400...690 V
- Output range: 12.5...100 KVAR
- Series J230 / C240 for all PFC systems
- AC6b utilization category

Approvals

- UL file E224924 NLDX and NLDX 7 for J series
- UL file E334934 NLDX and NLDX 7 for C series

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Technical data : Capacitor duty contactors premium series

Type	B44066*****J230								
Main contacts		S1811	S2411	S3211	S5011	S6211	S7411	S9011	S9911
Rated insulation voltage V_i, V_{is}	[V AC]	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	1,000 ¹⁾	1,000 ¹⁾
Admissible frequency of operation 1/h		120	120	120	120	120	80	80	80
Contact life	million operations	0.25	0.15	0.15	0.15	0.15	0.12	0.12	0.12
Cable cross section									
Solid or standard	[mm ²]	1.5–6	2.5–25	2.5–25	4–50	4–50	4–50	0.5–95/10–120	0.5–95/10–120
Flexible	[mm ²]	1.5–4	2.5–16	2.5–16	10–35	10–35	10–35	0.5–70/10–95	0.5–70/10–95
Flexible with multicore cable end	[mm ²]	1.5–4	2.5–16	2.5–16	6–35	6–35	6–35	0.5–70/10–95	0.5–70/10–95
Cables per clamp		2	1	1	1	1	1	2	2
Operating range of V_s magnet coils in multiples of control voltage		0.85–1.1	0.85–1.1	0.85–1.1	0.85–1.1	0.85–1.1	0.85–1.1	0.85–1.1	0.85–1.1
Auxiliary contacts ¹⁾									
Rated insulation voltage V_i, V_{is}	[V AC]	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾
Rated current I_m at ambient temperature									
max. 40 °C	I_{coth} [A]	16	10	10	10	10	10	10	10
max. 60 °C	I_{coth} [A]	12	6	6	6	6	6	6	6
Utilization category AC15									
220 to 240 V	I_{coth} [A]	12	3	3	3	3	3	3	3
380 to 440 V	I_{coth} [A]	4	2	2	2	2	2	2	2
Short circuit protection									
Highest fuse rating slow, gL (gG)	I_{coth} [A]	25	20	20	20	20	20	20	20
Auxiliary contacts	NO/NC	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

IEC 947-4-1, IEC 947-5-1, EN 60947-4-1, EN 60947-5-1, VDE 0660 Dimensional drawing: see datasheet

1) Applies to networks with grounded star point, overvoltage category I to IV, pollution severity 3 (industrial standard), $V_{imp} = 8$ kV. Values for other conditions on request.

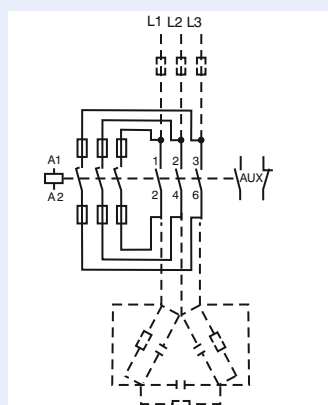
Main technical parameters 230V coil:

Capacitor power at ambient temperature, voltage, 50/60 Hz						Rated current		Weight	Ordering code
380 – 400 V		415 – 440 V		660 – 690 V					
50° C	60° C	50° C	60° C	50° C	60° C	50° C	60° C		
KVAr	KVAr	KVAr	KVAr	KVAr	KVAr	A	A	kg	
0–12.5	0–12.5	0–13	0–13	0–20	0–20	18	18	0.34	B44066S1811J230
10–20	10–20	10.5–22	10.5–22	17–33	17–33	28	28	0.60	B44066S2411J230
10–25	10–25	10.5–27	10.5–27	17–41	17–41	36	36	0.60	B44066S3211J230
20–33.3	20–33.3	23–36	23–36	36–55	36–55	48	48	1.10	B44066S5011J230
20–50	20–50	23–53	23–53	36–82	36–82	72	72	1.10	B44066S6211J230
20–75	20–60	23–75	23–64	36–120	36–100	108	87	1.10	B44066S7411J230
33–80	33–75	36–82	36–77	57–120	57–120	115	108	2.30	B44066S9011J230*
33–100	33–90	36–103	36–93	57–148	57–148	144	130	2.30	B44066S9911J230*

* without CCC

Connection diagram

All types B44066S****J230 (with preload resistors),
B44066S1811J230 with wires on the bottom,
B44066S9911J230 with resistors inside housing.



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Technical data : Capacitor duty contactors standard series

Type	B44066****C240								
Main contacts		C1011	C1211	C1611	C2011	C2511	C3312	C4012	C6012
Rated insulation voltage V_i V_{is}	[V AC]	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾
Admissible frequency of operation	1/h	240	240	240	240	240	240	240	100
Contact life	million operations	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Cable cross section									
Flexible with cable end sleeve - 1 conductor	[mm ²]	2.5	2.5	4	4	6	16	16	50
Flexible with cable end sleeve - 2 conductors	[mm ²]	1.5	1.5	2.5	4	4	6	6	25
Solid without cable end sleeve - 1 conductor	[mm ²]	4	4	6	10	16	25	25	50
Solid without cable end sleeve - 2 conductors	[mm ²]	4	4	6	6	10	16	16	35
Operating range of magnet coils in multiples of control voltage V_s		0.78-1.1	0.78-1.1	0.78-1.1	0.78-1.1	0.78-1.1	0.78-1.1	0.78-1.1	0.78-1.1
Auxiliary contacts ¹⁾									
Rated insulation voltage V_i V_{is}	[V AC]	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾	690 ¹⁾
Rated current I_{th} at ambient temperature:									
40° C	I_{coth} [A]	10	10	10	10	10	10	10	10
60° C	I_{coth} [A]	8	8	8	8	8	8	8	8
Utilization category AC15									
220 ... 240 V	I_{coth} [A]	3	3	3	3	3	3	3	3
380 ... 440 V	I_{coth} [A]	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Short circuit protection	I_{coth} [A]	10	10	10	10	10	10	10	10
Highest fuse size, slow, gG (gG)									
Auxiliary contacts									
NO		1	1	1	1	1	1	1	1
NC		1	1	1	1	1	2	2	2

IEC 947-4-1, IEC 947-5-1, EN 60947-4-1, EN 60947-5-1, VDE 0660 Dimensional drawing: see datasheet

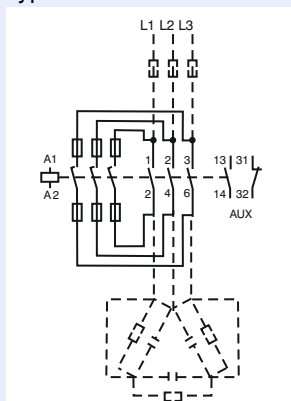
1) Applies to networks with grounded star point, overvoltage category I to IV, pollution severity 3 (industrial standard), $V_{imp} = 8$ kV. Values for other conditions on request.

Main technical parameters 240 V coil:

Capacitor power at ambient temperature, voltage, 50 / 60 Hz		Rated current		Weight	Ordering code
380 - 400 V	415 - 440 V 660 - 690 V				
55 °C	55 °C	55 °C	55 °C		
KVAr	KVAr	KVAr	A	kg	
0-10	0-10	0-12.5	14	0.43	B44066S1011C240
0-12.5	0-12.5	0-18	18	0.43	B44066S1211C240
0-16.7	0-16.7	0-24	24	0.43	B44066S1611C240
0-20	0-20	0-30	29	0.43	B44066S2011C240
0-25	0-25	0-36	36	0.43	B44066S2511C240
0-33.3	0-33.3	0-48	48	0.43	B44066S3312C240
0-40	0-40	0-58	58	0.43	B44066S4012C240
0-60	0-60	0-92	92	0.43	B44066S6012C240

Connection diagrams

Types B44066S...1C240



Types B44066S...2C240

