



Film Capacitors – Power Factor Correction

Series/Type: BR4000-ER
Ordering code: B44066R4...R240
Date: September 2015
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Preliminary data
Characteristics

- Intelligent control
- Menu driven handling in English language
- Test-run possible
- Large voltage measuring range
- Recall function of recorded values
- Four-quadrant operation
- Potential free contact alarm output (Optional)
- RS485 communication interface (Optional)
- Real Time Clock (Optional)


Features

Display	<ul style="list-style-type: none"> - Large and multifunctional LCD (2 × 16 characters) - Graphic and alphanumeric - LCD illumination
System parameters displayed	<ul style="list-style-type: none"> - System voltage (V AC) - Reactive power (kvar) - Active power (kW) - Frequency - Apparent power (kVA) - Apparent current (A) - Temperature (°C) - Real-time cos phi - kvar value to target cos phi - THD – V / THD - I in % upto 31st - Individual Harmonics in % upto 31st for V & I - Energy kWh (Import/ Export) - Energy kVAh - Energy kVARh (Inductive / Capacitive) - Demand kVA /Current - Run Hour – Number of hours load is connected - On Hour – Hours for which power supply is ON - No of interruption – Number of interruption for power supply.

Preliminary data

Alarm output	<ul style="list-style-type: none"> - Out of Bank (Under Compensation) - Overcompensation - Under Voltage - Over Voltage - Undercurrent - Overcurrent - Over temperature - Under / Over Frequency - Excess Harmonics (V-THD / I-THD)
Recall recorded values	<ul style="list-style-type: none"> - Maximum / Minimum Voltage - Maximum / Minimum Current - Maximum / Minimum Frequency - Maximum / Minimum Active Power - Maximum / Minimum Apparent Power - Maximum / Minimum Reactive Power - Maximum / Minimum Temperature - Maximum / Minimum THD(V/I) - Switching count of Capacitor - Operation time of capacitor
Warning Messages	<ul style="list-style-type: none"> - Capacitor switching count exceed the limit - Capacitor Health Fault

Technical Data

Weight	0.35 kg
Case	Panel-mounted instrument, 96 x 96 x 51 mm (Back Depth 70mm with add on module) (cut out 92 ^{+0.8} x 92 ^{+0.8} mm)
Ambient conditions	<ul style="list-style-type: none"> - Over-voltage class III - Pollution degree 2 - Operating temperature -10 ... +60 °C - Storage temperature -20 ... +65 °C - Sensitivity to EMC IEC61326-1 - Safety guidelines IEC 61010-1:2010 - Mounting position Flush Mounting - Humidity class 15% ... 95% non-condensing
Protection class	<ul style="list-style-type: none"> - Front plate IP54 to IEC60529 - Rear side IP20 to IEC60529

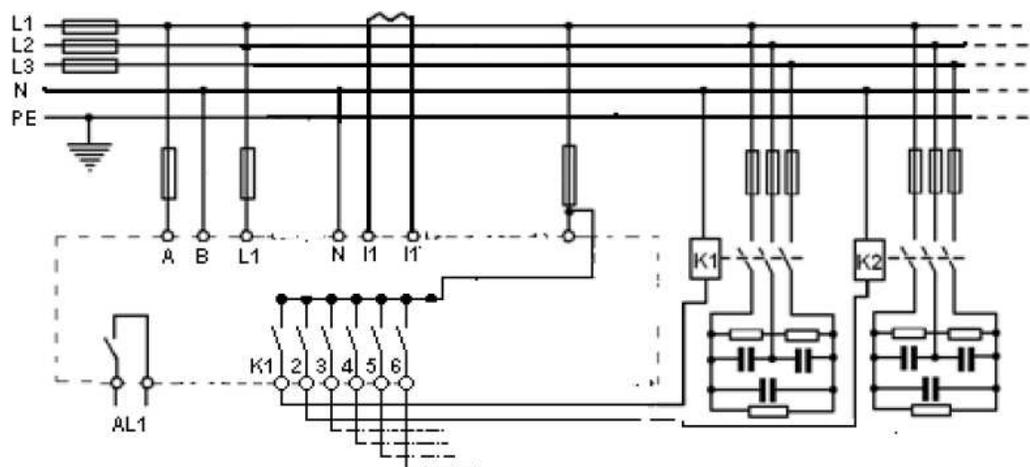
Film capacitors – Power Factor Correction	B44066R4...R240
Key components – PF-controller	BR4000-ER

Preliminary data

Operation <ul style="list-style-type: none"> - Auxiliary Supply voltage - Auxiliary Supply Frequency - Target cos phi - Switching On & Off - Discharge Time - Control modes 	<p>160 V AC – 460VAC</p> <p>40 to 70 Hz</p> <p>0.8 ind. ... 0.8 cap.</p> <p>10 s ... 30 min</p> <p>60 s ... 30 min</p> <p>self-optimized intelligent control mode</p>
Measurement <ul style="list-style-type: none"> - Measurement voltage range - Fundamental frequency - Measurement current (CT) - Minimum operating current - Maximum current - Accuracy 	<p>30 ... 550 V AC (L–L / L–N)</p> <p>45 and 70 Hz</p> <p>x/5 and x/1 Ampere onsite programmable</p> <p>2 mA</p> <p>6 A (sinusoidal)</p> <p>Current, voltage: 0.5% of nominal value</p> <p>Active, apparent power: 1% of nominal value</p> <p>Active Energy : 1%</p> <p>Apparent Energy : 1%</p> <p>Reactive Energy : 2%</p> <p>THD : ± 4%</p>
Switching outputs Relay outputs <ul style="list-style-type: none"> - Number of outputs - Switching voltage/Power 	<p>4 / 6 / 8 steps available</p> <p>Max. 250 VAC / 1000W</p>
Alarm relay	<p>Potential-free contact (Max. 250 VAC / 1000W)</p>

Preliminary data
Ordering Codes

Type	Voltage	Output Relay	Alarm output	Interface (RS485)	RTC	Ordering code
	50/60 Hz					
BR4000-ER	240	4	Yes	No	No	B44066R4004R240
BR4000-ER	240	6	Yes	No	No	B44066R4006R240
BR4000-ER	240	8	Yes	No	No	B44066R4008R240
BR4000-ER	240	4	Yes	Yes	No	B44066R4xx4R240
BR4000-ER	240	6	Yes	Yes	No	B44066R4xx6R240
BR4000-ER	240	8	No	Yes	No	B44066R4xx8R240
BR4000-ER	240	4	Yes	Yes	Yes	B44066R4xx4R240
BR4000-ER	240	6	Yes	Yes	Yes	B44066R4xx4R240
BR4000-ER	240	8	Yes	No	Yes	B44066R4xx8R240
BR4000-ER	240	8	No	Yes	Yes	B44066R4xx8R240

Preliminary data
Connection plan
Electrical Connections:

⚠ Cautions and warnings

Controller hunting: When putting the capacitor bank into operation, it is required to avoid needless switching cycles (means permanent switching on and off of steps without significant change of consumer load). This so called “controller hunting” would increase the number of switching operations of the connected contactors and capacitors and decrease the expected life cycle (wear out) and, in worst case, capacitor bursting and fire, etc. This can be avoided by a proper programming of the BR4000-ER with the actual system parameters (current transformer prim. and sec., Nominal Voltage, kvar steps, capacitor switching threshold, switching time).

Accessory for PF-Controller BR4000-ER

For add on Relay block & RS485 module should be ordered separately.

⚠ Please read cautions information about PFC capacitors and cautions as well as installation and maintenance instructions in the actual version of the Product Profile *Power Factor Correction* to ensure optimum performance and prevent products from failing, and in worst case, bursting and fire, etc. The actual Product Profile is available at www.epcos.com/publications.

Information given in the PFC-product profile and values given in the data sheet reflect typical specifications. You are kindly requested to approve our product specifications or request our approval for your specification before ordering.

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