

Preliminary data
Characteristics

- Intelligent control
- Menu driven handling (plain language; German/English/Spanish)
- Self-optimizing control capability
- Large measuring voltage range
- Recall function of recorded values
- Four-quadrant operation (e.g. stand by generator)
- Powerful alarm output


Features

Display	<ul style="list-style-type: none"> - Large and multifunctional LCD (2 x 16 characters) - Graphic and alphanumeric - LCD illumination
System parameters displayed	<ul style="list-style-type: none"> - System voltage (VAC) - Reactive power (kvar) - Active power (kW) - Frequency - THD-V, THD-I - Individual harmonics up to 19th - Apparent power (kVA) - Apparent current (A) - Temperature (°C) - Real-time cos φ - Target cos φ - kvar value to target cos φ
Alarm output	<ul style="list-style-type: none"> - Insufficient compensation - Overcompensation - Undercurrent - Overcurrent - Overtemperature - Harmonics exceeded - Threshold value programmable - Internal error storage - Programming of 2nd signal relay random
Recall recorded values	<ul style="list-style-type: none"> - Number of contactor switching operations - Maximum voltage, (V_{max}) - Maximum reactive power, Q (kvar) - Maximum value of harmonic - Maximum active power, P (kW) - Maximum apparent power, S (kVA) - Maximum temperature (°C) - Operation time of all capacitors
Dynamic PFC	<ul style="list-style-type: none"> - Thyristor switching for BR6000T6 and BR6000T12

Preliminary data
Technical data

Weight	1 kg
Case	Panel-mounted instrument, 144 x 144 x 60 mm (cut out 138 x 138 mm)
Ambient conditions	
- Over-voltage class	III
- Pollution degree	2
- Operating temperature	-10 °C +70 °C
- Storage temperature	-20 °C ... +75 °C
- Sensitivity to inference (industrial areas)	EN55082-2.1995
- Spurious radiation (residential areas)	EN55011 10.1997
- Safety guidelines	EN61010-1 03.1994 + A2 05.1996 IEC1010-1 1990 + A1 1992
- Mounting position	Any
- Humidity class	15% to 95% without dew
Protection class	
- Front plate	IP54 according to IEC529 / DIN 40050
- Rear side	IP20 according to IEC529 / DIN 40050
Operation	
- Supply voltage	230 VAC, 50 and 60 Hz power lines
- Target cos φ	0.8 ind. – 0.8 cap.
- Switching and discharge time range	1 – 1200 seconds
- Number of control series	20 series preset + control series editor for free programming
- Control modes	Series switching (LIFO), circular switching (FIFO), self-optimized intelligent control mode
Measurement	
- Measurement voltage range	30 ... 300 VAC (L-N)
- Fundamental frequency	50 and 60 Hz
- Measurement current (CT)	x/1 and x/5 Ampere possible
- Minimum operating current	40 mA
- Maximum current	5.3 (sinusoidal)
- Zero voltage release	< 15 ms

Preliminary data

Switching outputs Relay outputs - Number of relays - Switching voltage/power - Expected mechanical life - Expected electrical life	6 and 12 steps available max. 250 VAC, max. 1000 W > 30 x 10 ⁶ switching operations > 5 x 10 ⁶ switching operations (load = 200 VA, cos φ = 0.4)
Alarm relay	Potential-free contact (6 parameters)

Ordering codes

Type	Voltage 50/60 Hz	Output		Alarm output	Switchover target cos φ1/2	Inter- face	Ordering code
		Relay	Transistor				
BR6000-R6	230	6	-	Yes	No	No	B44066R6006E230
BR6000-T6	230	-	6	Yes	No	No	B44066R6106E230
BR6000-R12	230	12	-	Yes	No	No	B44066R6012E230
BR6000-T12	230	-	12	Yes	No	No	B44066R6112E230
BR6000-R12/F	230	12	-	Yes	Yes	No	B44066R6212E230
BR6000- R12/S232*	230	12	-	Yes	Yes	RS232	B44066R6312E230
BR6000- R12/S485	230	12	-	Yes	Yes	RS485	B44066R6412E230

* including Windows-Software

Cautions

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 BR6000.

0 with the actual system parameters (current transformer prim. and sec., first kvar step, control series, switching time).

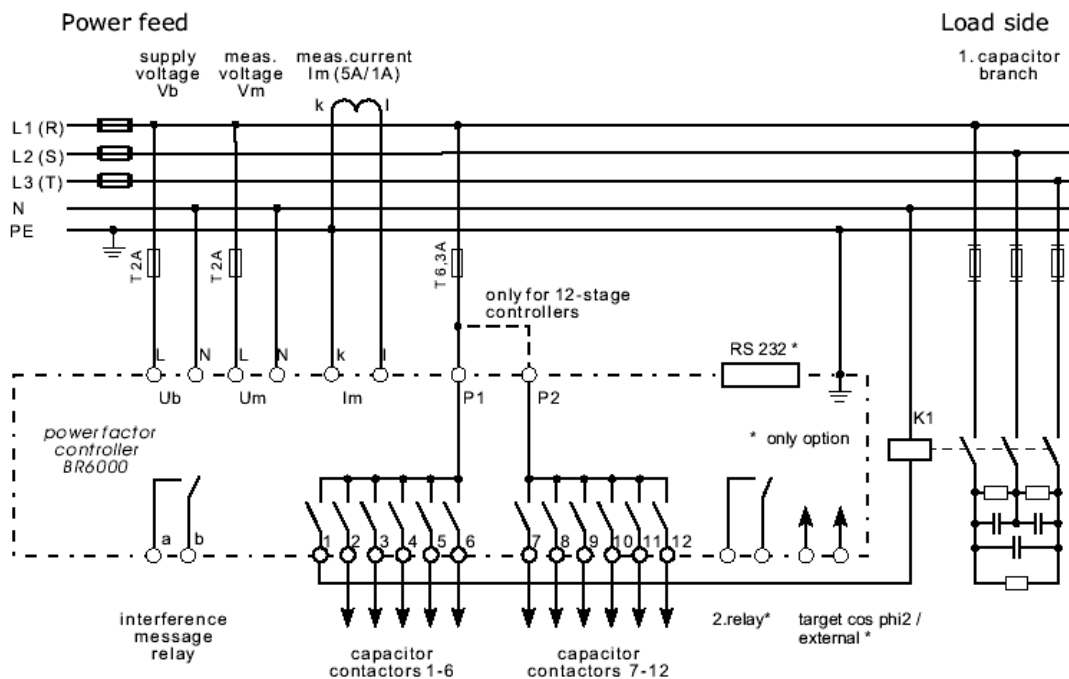
Preliminary data

- Minimum discharge time set in the controller must be in line with the discharge device of the capacitors, e.g. standard discharge resistors used by EPCOS are designed for 60 seconds discharge time. A discharge time set in BR6000 shorter than the capacitor discharge time leads to extremely high inrush currents and can damage the capacitor as well as distribution equipment and may in worst case lead to capacitor bursting and fire.

Beside high inrush currents, it has to be considered that according IEC831 standard the annual number of switching operations is limited to 5000 switchings. In case of very fast switching and higher number of switching operations you are kindly requested to request EPCOS approval for your application. For fast switching in LV PFC we recommend dynamic PFC systems.

- LIFO switching principal for tuned filter circuits: For usage in application with tuned filter circuits the specific switching conditions have to be obeyed (order of switching on and off of stages). As a certain order of switching of stages is mandatory, the switching principle (factory-made "Intelligent loop connection") should be changed to "Sequential connection" (LIFO).

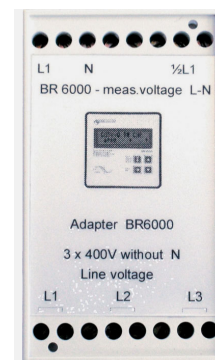
Connection plan



Preliminary data
Accessory for PFC-Controller BR6000

- Adapter

Used to align the BR6000 to grids without neutral conductor. The input of the adapter is connected to the 3 phases of the grid; output connected to the measuring voltage input of the controller.



⚠ The voltage at the measuring input must not exceed 525 V. At output "1/2 L1" half measuring voltage L-N is disposable.

Technical data

Design	Compact form; all connections as screw type clamp
Mounting	Snap on top hat rail
Input voltage	Grid without neutral max. 3 x 525 V
Output voltage 1	L1-N
Output voltage 2	1/2 L1-N (when using this output, a U-transformer ratio of 2 has to be programmed at the BR6000)
Protection	Necessary external accord. cable cross section
Max. ambient temperature	-20 / + 55 °C
Dimensions	76 x 45 x 110 mm (h x w x d)
Ordering code	B44066R9999E230

⚠ Please read cautions on page 3 and 4 of this data sheet, information about PFC capacitors and accessories and cautions as well as installation and maintenance instructions (Power Factor Correction Product Profile, actual version) to ensure optimum performance and prevent products from failing, and in worst case, bursting and fire, etc.

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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