



## Film capacitors – Power Factor Correction

### Key components – Hybrid PF-controller

**Series/Type: BR6000-T6R6 V6.0**

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B44066R6466E230	B44066R7612E230	2014-10-31	2015-01-31	2015-04-30
B44066R6066E230	B44066R7412E230	2014-10-31	2015-01-31	2015-04-30

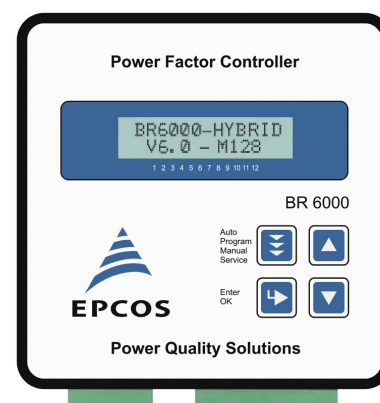
For further information please contact your nearest EPCOS sales office, which will also support you in selecting a suitable substitute. The addresses of our worldwide sales network are presented at [www.epcos.com/sales](http://www.epcos.com/sales).

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### Characteristics

- 6 transistor outputs for direct triggering of thyristor modules TSM series for dynamic compensation
- 6 relay outputs for direct triggering of capacitor contactors for conventional compensation
- Intelligent behavior that logically combines both types of control of the output steps
- Menu driven handling (plain language)
- Czech/Dutch/English/French/German/Polish/Portuguese/Russian/Spanish/Turkish
- Self-optimizing control capability
- Large measuring voltage range
- Recall function of recorded values ( $V_{max}$ , kvar, kW, kVA, °C)
- Four-quadrant operation (e.g. standby generator)
- Powerful alarm output
- Control series editor (value perception selectable)
- 2<sup>nd</sup> target power factor
- High precision of measurement
- 2<sup>nd</sup> expert mode
- Fixing of net frequency in the expert mode (for measuring) to avoid errors when measuring in critical grids
- Auto-range-function for sensitivity: For input current <1A the amplification is increased in order to reach a sensitivity of 20 mA.
- Interface RS485 optional



### Features

Display	<ul style="list-style-type: none"> <li>- Large and multifunctional LCD (2 × 16 characters)</li> <li>- Graphic and alphanumeric</li> <li>- LCD illumination</li> </ul>
System parameters displayed	<ul style="list-style-type: none"> <li>- System voltage (V AC)</li> <li>- Reactive power (kvar)</li> <li>- Active power (kW)</li> <li>- Frequency</li> <li>- Apparent power (kVA)</li> <li>- Apparent current (A)</li> <li>- Temperature (°C / °F )</li> <li>- Real-time cos φ</li> <li>- Target cos φ</li> <li>- Switchover cos-φ/tan-φ</li> <li>- kvar value to target cos φ</li> <li>- Harmonics of voltage and current</li> <li>- Display of values also as percentage</li> </ul>
Alarm output	<ul style="list-style-type: none"> <li>- Insufficient compensation</li> <li>- Overcompensation</li> <li>- Undercurrent</li> <li>- Overcurrent</li> <li>- Overtemperature</li> <li>- Threshold value programmable</li> </ul>
Recall recorded values	<ul style="list-style-type: none"> <li>- Maximum voltage, <math>V_{max}</math></li> <li>- Maximum reactive power, Q (kvar)</li> <li>- Maximum active power, P (kW)</li> <li>- Maximum apparent power, S (kVA)</li> <li>- Maximum temperature (°C)</li> </ul>

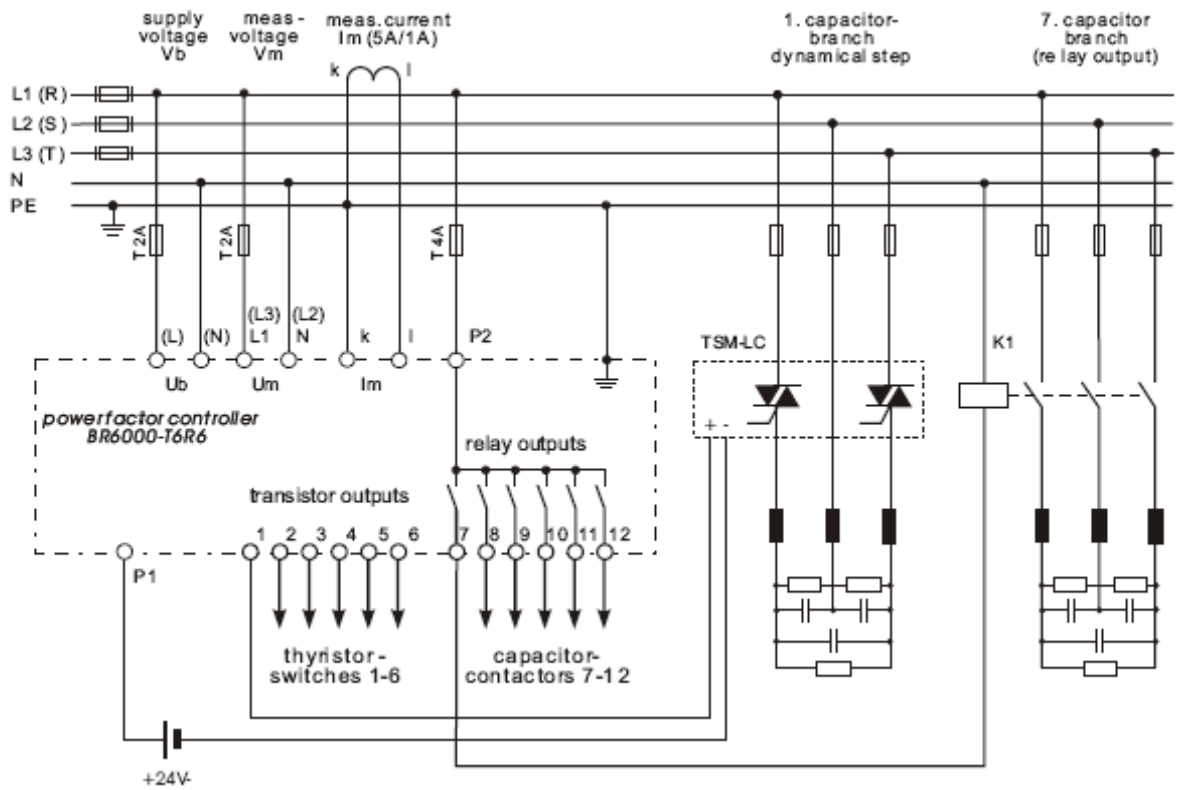
Additional Features	<ul style="list-style-type: none"> <li>- Internal error storage</li> <li>- 2<sup>nd</sup> signal relay random</li> <li>- Triggering time programmable</li> </ul>
<b>Technical data</b>	
Weight	1 kg
Case	Panel-mounted instrument, 144 × 144 × 55 mm (cut out 138 × 138 mm)
Ambient conditions	
Overvoltage class	II
Pollution degree	2
Operating temperature	–20 ... +60 °C
Storage temperature	–20 ... +75 °C
Sensitivity to inference (industrial areas)	EN55082–2.1995
Spurious radiation (residential areas)	EN55011–10.1997
Safety guidelines	IEC61010–1:2001, EN61010–1:2001
Mounting position	Any
Humidity class	15 ... 95% without dew
Protection class	
Front plate	IP54 to IEC60529
Rear side	IP20 to IEC60529
Operation	
Supply voltage	110 ... 230 V AC, 50 and 60 Hz power lines
Target cos φ	0.3 inductive to 0.3 capacitive adjustable
Switching and discharge time range	20 ... 1000 ms / 1 ... 1200 s (dynamic / static section)
Number of control series	20 series preset + control series editor for free programming
Control modes	<ul style="list-style-type: none"> <li>- Series switching (LIFO),</li> <li>- Circular switching (FIFO),</li> <li>- Self-optimized intelligent control mode</li> </ul>
Measurement	
Measurement voltage range	30 ... 525 V AC (L–N) or (L–L)
Fundamental frequency	50 and 60 Hz
Measurement current (CT)	x/5 and x/1 Ampere possible
Minimum operating current	40 mA / 10 mA
Maximum current	5.3 A (sinusoidal)
Zero voltage release	< 15 ms

Switching outputs Output 1... 6: transistor Output 7...12: relay	6 steps (10 ... 24 V DC, 40 mA) 6 steps (230 V AC, 6 A)
Alarm relay Message relay	Potential-free contact (max. 250 V, 6 A) Potential-free contact (max. 250 V, 6 A) 2 <sup>nd</sup> target power factor programmable (activation via external input)
Interface	Optional RS485 Parity can be set for the transfer protocol

**Ordering codes**

Type	Voltage 50/60 Hz V AC	Output		Alarm output	Switchover target cos $\phi$ 1/2	Inter- face	Ordering code
		Relay	Transistor				
BR6000-T6R6	110 ... 230	6	6	Yes	Yes	No	B44066R6066E230
BR6000-T6R6/S485	110 ... 230	6	6	Yes	Yes	RS485	B44066R6466E230

Connection plan



### **⚠ 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 BR6000 with the actual system parameters (current transformer prim. and sec., first kvar step, control series, switching time).

### **Accessory for PF-Controller BR6000**

- USB to RS485 converter to connect BR6000-T6R6/S485 to a PC, ordering code B44066R3333E230
- Data logger "DataLog SD" for BR6000, ordering code B44066R1311E230
- Multi measuring interfaces MMI6000/MMI7000 for real current measuring

Technical data see separate data sheets.

**⚠ 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](http://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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