



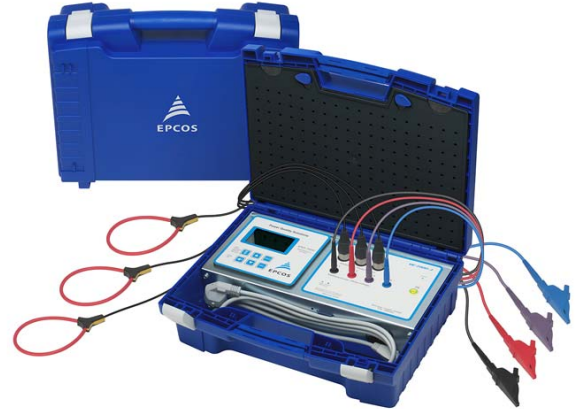
Film Capacitors – Power Factor Correction

Grid analysis tool

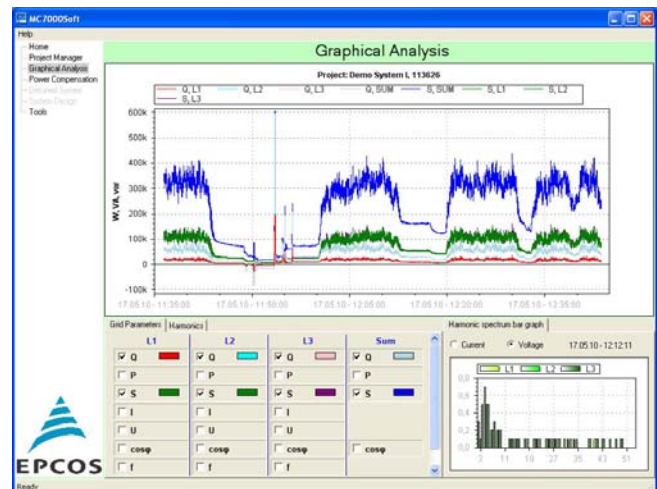
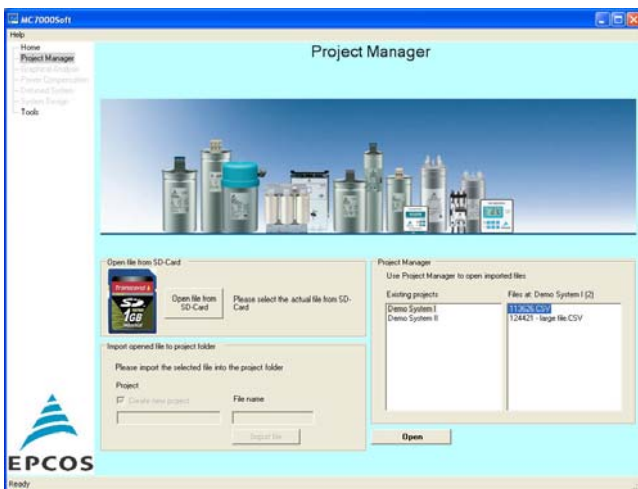
Series/Type: MC7000-3
Ordering code: B44066M7777E230
Date: August 2010
Version: 2

Characteristics

- Three-phase measuring, display and storage of numerous electric parameters in LV-grid:
 - Voltage (3-phase)
 - Current (3-phase)
 - Frequency (3-phase)
 - Active power (3-phase)
 - Reactive power (3-phase)
 - Apparent power (3-phase)
 - Power factor (3-phase)
 - Active, reactive and apparent energy
 - Voltage harmonics (up to 51st)
 - Current harmonics (up to 51st)
 - THD-V (3-phase)
 - THD-I (3-phase)
 - Temperature
 - Minimum and maximum values with time stamp
- Display and internal storage of maximum values with time stamp
- Display of date and time
- Display of harmonics, bar diagram available
- Large number of display options e.g. rotating display and adjustment of font size
- Oscilloscope mode for graphical display of a complete oscillation incl. the harmonics
- Display of measured values (display editor) and rotating change of selected display values freely programmable
- Storage of all measured grid parameters on pluggable memory card (SD card), included in delivery
- Adjustment of font size to large display (max. 3 measuring values in the display)
- Plain-text menu in English, German, Russian, Spanish and Turkish



- PC-Windows software for fast and easy evaluation of measured data included in delivery
 - Administration of several projects
 - Graphical display
 - Several pre-configured graphical displays of standard values
 - Graphical display of selected grid values, large number of configuration options
 - Convenient editing of parameters and time interval
 - Display as line graph or bar diagram
 - Copy into clipboard and print function available
 - Mathematical evaluation of measured values
 - Automatic calculation of required kvar (target-cos ϕ to be set by user)
 - Evaluation of measured harmonics and recommendation of detuning factor for a PFC system of calculated size
 - Influence of detuning on the harmonics for the calculated detuning factor and system size is given.



Technical data and specifications	
Operating voltage (auxiliary voltage)	110 ...230 V AC +/-15% 50/60 Hz
Power consumption	< 5 VA
Internal pre-fuse	1 AT
Frequency	50/60 Hz
Measuring voltage (3-phase)	3 • 30...400 V ~ (L-N) 50/60 Hz 3 • 50...690 V ~ (L-L) 50/60 Hz
Max. Measuring voltage (3-phase) including all tolerances and overvoltages	3 • 30...440 V ~ (L-N) 50/60 Hz 3 • 50...760 V ~ (L-L) 50/60 Hz
Measuring current (3-phase)	30 / 300 / 3000 A (MiniFlex flexible current clamps, to be ordered separately)
Display	Illuminated, full graphic, 128 x 64 dot
Menu	D/ E / ES / RU / TR
Display of grid parameters as real value / in % / as bar diagram	3-phase Cos-phi, V, I, f, Q, P, S, THD-V, THD-I
Display of 3 grid parameters in large font	Selection in display editor
Display of harmonics	3 rd to 51 st harmonics of voltage and current, also as bar diagram
Oscilloscope mode	Available
Sensitivity	Current/voltage: 1% Active, reactive and apparent power: 2%
Integrated help function with HELP button	Context dependent, plain text
Recording, storage function	
Storage of all grid parameters on SD card according to pre-set measuring interval	3-phase Cos-phi, V, I, f, Q, P, S, THD-V, THD-I
Data carrier	Standard SD card included in delivery
Measuring interval	1 / 10 / 60 seconds
Duration of recording per file at intervals of 1/10/60 seconds	18 hours / 7 days / 45 days
Additional storage of maximum values in the internal store of the measuring device	Voltage, current, active, reactive and apparent power, temperature, THD-V, THD-I
Error storage	Error register in plain text with time stamp

Additional specifications	
Ambient temperature range (operation)	-10 ...+50 °C
Storage temperature range	-20 ...+60 °C
Pollution degree	2
Overvoltage class	CAT III
Protection degree to IEC60529	IP40
Connection	N connection mandatory, PE if N not available
Security	IEC 61010-1:2001; EN 61010-1:2001
EMV	IEC 61000-4-2: 8kV; IEC 61000-4-4: 4kV
Casing	Compact lightweight plastic case 390 x 310 x 147 mm (outside dimensions)
Weight	Approx. 4 kg
Accessories included	3 safety measuring cables 2 m (black, red, violet), 1000 V, CAT IV, incl. high-power fuse
	1 safety measuring line 2 m, blue, 1000 V, CATIII
	4 safety dolphin clips 1000 V, CATIII, black, red, violet, blue
	Windows software CD
	1 memory card (SD-Card); 1GB
	1 power lead
Accessories mandatory, but not included in the delivery	3 flexible MiniFlex current clamps, cable 2.8 m, 600 Vrms (CAT IV), 1000 Vrms (CAT III) max. 3000 A, sensor 400 mm Ordering code 1 piece: B44066M1301E230 Ordering code 3 pieces: B44066M1303E230

Cautions and warnings

- The MC7000-3 is designed exclusively for use in low-voltage switching systems. It is unsuitable for measurements in mid and high-voltage networks.
- The maximum permissible supply voltages (see technical data) must not be exceeded!
- The equipment may be operated only by suitably trained personnel.
- Before applying the measuring voltage, the device must be grounded via the power connection line (protective conductor socket). An additional PE socket is available. Measurements with ungrounded equipment constitute a hazard and are impermissible!
- When measuring systems whose zero-potential status is not ensured, the accident prevention specifications must be observed!
- For voltage measurements, only measuring lines with an isolation class of at least CATIII/1000 V may be used.

Note

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

Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified**. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
3. **The warnings, cautions and product-specific notes must be observed.**
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.epcos.com/material). Should you have any more detailed questions, please contact our sales offices.
5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order. We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.
6. Unless otherwise agreed in individual contracts, **all orders are subject to the current version of the "General Terms of Delivery for Products and Services in the Electrical Industry" published by the German Electrical and Electronics Industry Association (ZVEI)**.
7. The trade names EPCOS, BAOKE, Alu-X, CeraDiode, CSMP, CSSP, CTVS, DeltaCap, DigiSiMic, DSSP, FormFit, MiniBlue, MiniCell, MKD, MKK, MLSC, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, SIP5D, SIP5K, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.epcos.com/trademarks.