3phase

1956 - 2006

50 Jahre Erfahrung und Qualität
50 years of experience and quality

BELUK POWER QUALITY

power factor control relay

BLR-CM 3phase

3-PHASE MEASUREMENT SYSTEM GUARANTEES OPTIMUM POWER FACTOR CORRECTION ALSO WITH UNSYMMETRICAL LOADS

INTELLIGENT REGULATION ALGORITHM GUARANTEES OPTIMUM CHOICE OF STEPS AND SHORT COMPENSATION TIMES

COMPENSATION OF REACTIVE POWER WITH FULLY AUTOMATIC RECOGNITION AND SUPERVISION OF CAPACITORS

BELUK GmbH
Taubenstrasse 1
86956 Schongau
Germany
Tel: +49 8861 2332-0
Fax: +49 8861 2332-22
e-mail: blr@beluk.de
http://www.beluk.de

BELUK POWER QUALITY

Competence in Planning - Quality in Detail

BELUK - Your Partner for:

Reactive Power Compensation and Energy measurement
Medium- and Low voltage switchgears

MANAGEMENT SYSTEM
certified by DQS according to DIN EN ISO 9001
Reg. No. 004576

PR_EN_BLRACM_3A_01

Reactive power compensation units are used in companies to save costs and also to reduce the load of the network. This is the cause that there are special requirements for the control units of these compensation panels, the power factor control relays. The most important duty for the power factor control relay is the reliable regulation of reactive power. On the one hand this is reducing costs and on the other hand the current through cables and circuit breakers is also reduced. Another task is to supervise the function of the panel and to signal problems. These tasks are perfectly done by Beluk power factor regulators with itheir patented regulation principle. By continuous measuring of the capacitor power the relay is always able to use the step with the optimal size. The program for regulation is only defined by the choice of the used capacitor sizes. If capacitors, contactors or fuses are damaged, power factor regulators of the BLR-CM series are detecting this and they give an alarm. If necessary this alarm message can also be forwarded by the internal alarm relay.

REGULATION

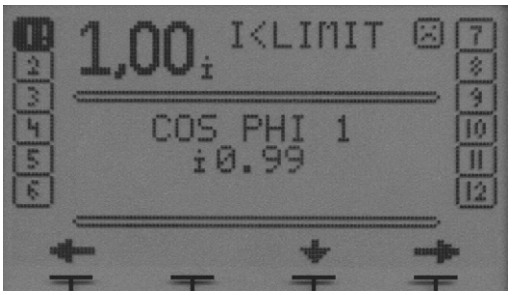
The 3-phase measurement system of the BLR-CM 3phase power factor regulator also detects unsymmetrical loads. Furthermore the regulation algorithm respects unsymmetrical capacitor steps during its work. Thus also in unsymmetrical electricity networks an optimum power factor correction is guaranteed. Short compensation times combined with smallest amount of operations and an equal dispersion of the operating cycles underline the superior intelligence of the BLR-CM 3phase.

All relevant parameters for the regulation are set ex works in the way that in nearly all cases no further adjustments are necessary to start the regulation. But this does not mean that the power factor controller BLR-CM 3phase cannot be adapted to the compensation system by the means of further adjustments.

In the standard setup-menu all basic settings of the BLR-CM 3phase can be done. Among these settings there are e.g. the current- and voltage transformer ratios, which are necessary for the correct display of the measurement values.

Switchover from target-cosphi 1 to target-cosphi 2 can selectively be done by programmable events. These events can be triggered by the digital input as well as by adjustable limits.

In the expert setup-menu there are many further extensive settings available. Entering this sumenu is password protected to avoid access of unauthorized people. By means of these settings the device can be adapted optimally to the pfc system if necessary. Inside this expert menu there are e.g. the alarm settings which can be set very comfortable.



FEATURES

All relays are fitted with these features as standard:
Auxiliary voltage separate from voltage measuring

Auxiliary voltage:	115/230V, 45-65Hz
Voltage measuring:	1 x 50 - 530V
Current measuring:	3 x 15mA - 5A
Relay output alarm:	1 x C/O contact
Digital input:	1 x 50 - 250V AC
Digital output:	1 x N/O contact

Sensor for temperature measuring

Types of different switching outputs:
BLR-CM*3phase* 06R: 6 relays (one common point)
BLR-CM*3phase* 12R: 12 relays (one common point)
BLR-CM*3phase* 06T: 6 static outputs (one common point)
BLR-CM*3phase* 12T: 12 static outputs (one common point)
BLR-CM*3phase* 12RT: 6 static outputs, 6 relays (twoseperate commonpoints)

Optional features:
-MB: RS485 with Modbus RTU protocol

Different auxiliary voltage on request

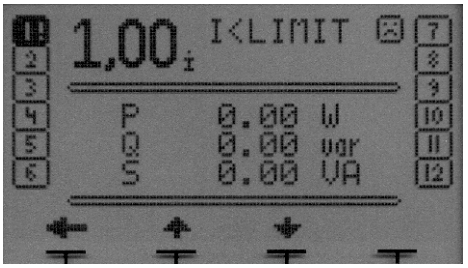
MEASURING

By means of the measurement values of voltage and current BLR-CM calculates the conditions in the network. As standard, the voltage L2-L3 and current in L1, L2 and L3 is used. The separation of auxiliary voltage and voltage measuring allows a voltage measuring range between 50 - 530V. Additionally, there is the possibility to change the phase shift between voltage and current in steps of 15 degrees. The result is the maximum possible flexibility of the relay for applications with voltage measuring phase/neutral, phase/phase and for mixed measuring with different transformer types.

The BLR-CM is measuring the temperature in the panel by using the integrated temperature sensor. This mea surement value can be handled flexible, e.g. it can be used for an alarm message. By the means of the digital output an additional fan can be activated.

At BLR-CM the following measurement values can be displayed:

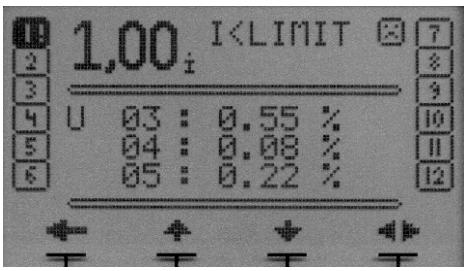
- voltage (phase/phase and phase/neutral)
- current L1, L2, L3
- active power (total)
- reactive power (total)
- apparent power (total)
- THD voltage
- THD current L1, L2, L3
- harmonics for voltage (order 2 - 31)
- harmonics for current L1, L2, L3 (order 2 - 31)
- counter active work import / export
- counter reactive work induktive / capacitive
- missing reactive power for target-cosphi
- frequency
- temperature



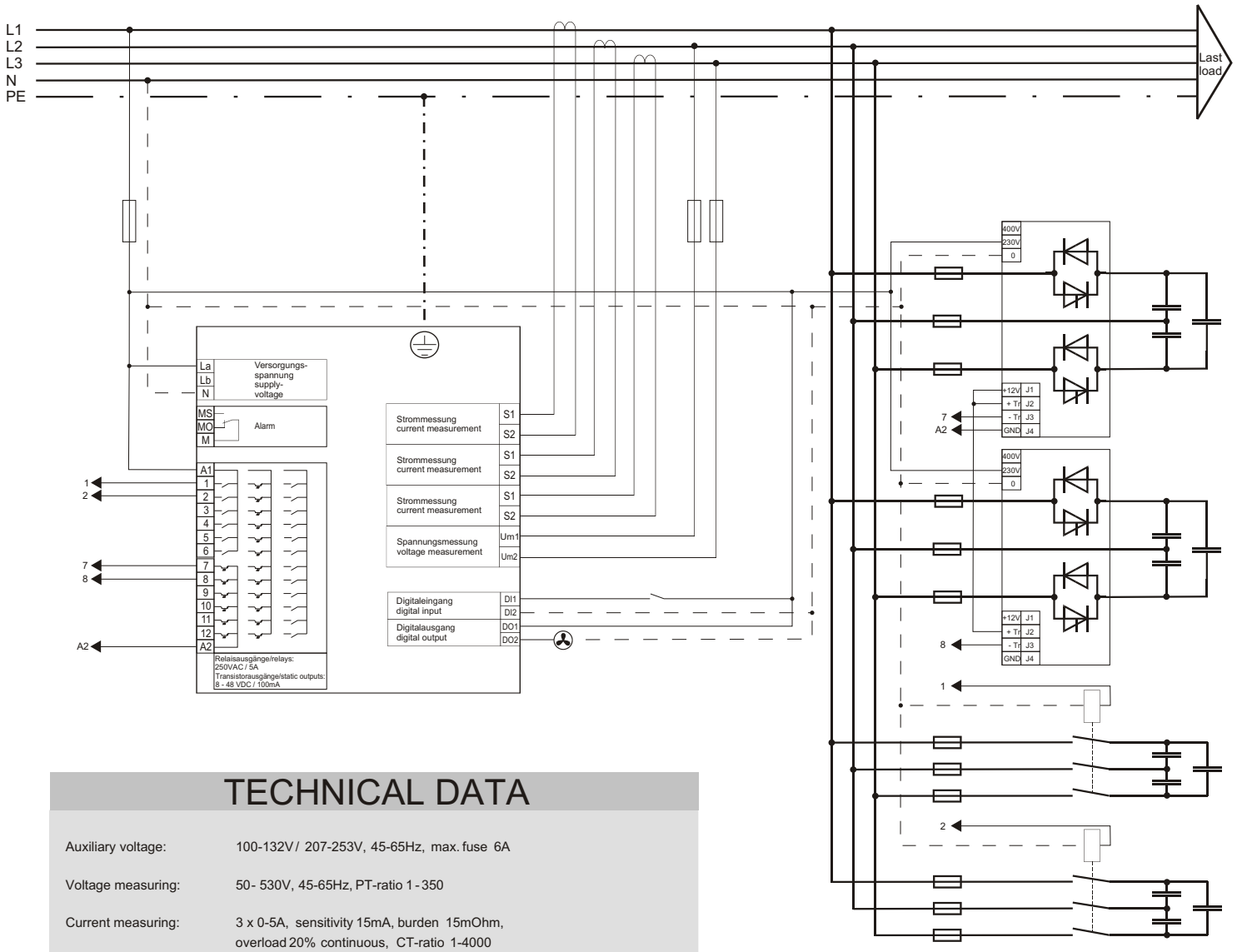
SUPERVISION

The BLR-CM includes a lot of different supervision functions to guarantee a durable safe operation of the compensation system and to ensure a long life cycle of the used components. Some of these supervising functions are:

- under- and overvoltage
- harmonics
- defective steps
- maintenance (loss of power and amount of operations)
- alarm by not reaching the target cosphi
- temperature measuring with fan control and switching off steps
- digital input



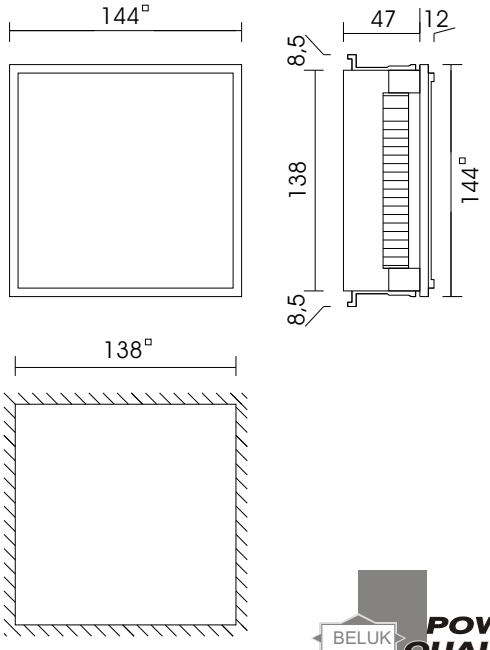
CONNECTION DIAGRAM



TECHNICAL DATA

Auxiliary voltage:	100-132V / 207-253V, 45-65Hz, max. fuse 6A
Voltage measuring:	50- 530V, 45-65Hz, PT-ratio 1 - 350
Current measuring:	3 x 0-5A, sensitivity 15mA, burden 15mOhm, overload 20% continuous, CT-ratio 1-4000
Regulation outputs:	6R, 12R, 6T, 12T, 12RT relays: N/O, one common point, max. fuse 6A breaking capacity: 250V AC / 5A static outputs: open-collector, breaking capacity: 8-48V DC / 100mA
Alarm contact:	C/O, voltfree, programmable max. fuse 6A, breaking capacity 250V AC / 3A
Digital input:	50 - 250V AC, programmable
Digital output:	N/O, voltfree, programmable max. fuse 6A, breaking capacity 250V AC / 5A
Interface:	RS485 (optional) Modbus RTU protocol (Slave)
Ambient temperature:	operation: 0°C … +70°C, storage: -20°C … +85°C
Humidity:	0% - 95%, without moisture condensation
Overvoltage class:	II, pollution degree 3(DIN VDE 0110, Teil 1 / IEC 60664-1)
Standards:	DIN VDE 0110 Teil1(IEC 60664-1:1992) VDE 0411 Teil1 (DIN EN 61010-1 / IEC 61010-1:2001) VDE 0843 Teil 20 (DIN EN 61326 / IEC 61326: 1997 + A1: 1998 +A2:2000)
Conformity and listing:	CE, UL, cUL
Terminals:	screw-type, plugable, max. 2,5qmm
Casing:	front: instrument casing plastic (UL94-VO), rear: metal
Protection class:	front: IP54, rear: IP20
Weight:	ca. 0,8 kg
Dimensions:	144 x 144 x 58mm h x w x d, cutout $138^{+0,5}$ x $138^{+0,5}$mm

DIMENSIONS



BELUK POWER QUALITY

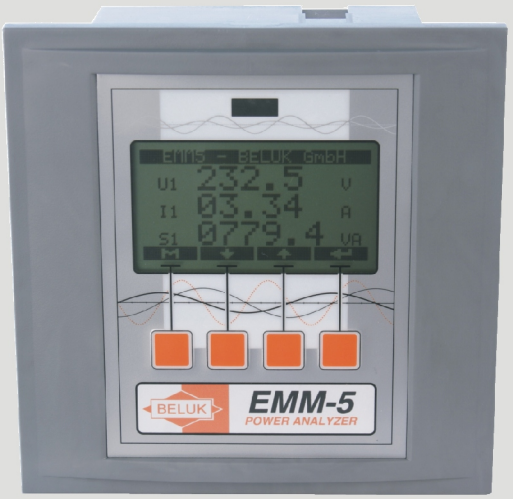
More Products from Beluk:

Static - Contactor
BEL-TS

For dynamic power-factor compensation

- for threephase capacitors
- switching without transients
- typical switching time: 1 period
- for choked and unchoked capacitors
- for mains voltage up to 690V
- standard-types:
  BEL-TS25H2
  BEL-TS50H2
  BEL-TS75H2

POWER-ANALYZER
EMM5



Hand over by our sales - partner: