

BLR-CM

1956 - 2006

50 Jahre Erfahrung und Qualität
50 years of experience and quality

BELUK

**POWER
QUALITY**

power factor control relay

BLR-CM



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**COMPENSATION OF REACTIVE POWER WITH FULLY AUTOMATIC
RECOGNITION AND SUPERVISION OF CAPACITORS
INTELLIGENT REGULATION ALGORITHM GUARANTEES
OPTIMUM CHOICE OF STEPS AND SHORT COMPENSATION TIMES
NO SETTINGS ARE NECESSARY FOR
COMMISSIONING OF THE REGULATION FUNCTION**

Competence in Planning - Quality in Detail

BELUK - Your Partner for:

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

BELUK

**POWER
QUALITY**

MANAGEMENT SYSTEM



certified by DQS according to
DIN EN ISO 9001
Reg. No. 004676

PR_EN_BLR-CM_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 their 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 intelligent regulation algorithm from Beluk switches the steps optimized and by this it guarantees short compensation times combined with smallest amount of operations. The operating cycles are shared equally to all steps.

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 cannot be adapted to the compensation system by the means of further adjustments.

In the standard-menu the following adjustments can be made:

Measurement: current- and voltage transformer ratio, rated voltage

CT- and PT- ratio are only necessary to display the correct measurement values. The setting for rated voltage is needed for over- and undervoltage protection.

Regulation: target-cosphi 1, target-cosphi 2, switching time delay

Switchover from target-cosphi 1 to target-cosphi 2 is done by programmable events. This can either be the digital input or exceeding of threshold levels.

Adjustments for every step:
rated value, discharging time, regulated, on-fix, off-fix

The expert-mode allows many further extensive settings.

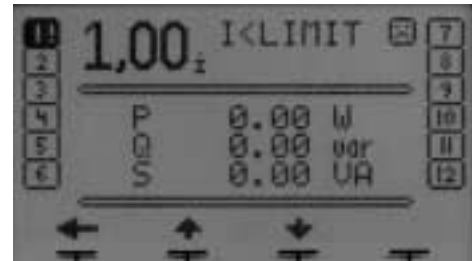
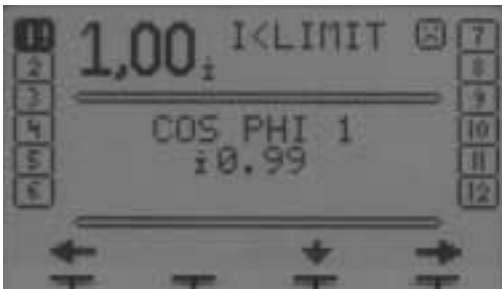
MEASURING

By means of the measurement values of voltage and current BLR-CM calculates the conditions in the network. As standard, the voltage L1-N and current in L1 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 measurement 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
- active power
- reactive power
- apparent power
- THD voltage
- THD current
- harmonics for voltage (order 2 - 31)
- harmonics for current (order 2 - 31)
- counter active work import / export
- counter reactive work inductive / capacitive
- missing reactive power for target-cosphi
- frequency
- temperature



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: 1 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 06R: 6 relays (one common point)
 BLR-CM 12R: 12 relays (one common point)
 BLR-CM 06T: 6 static outputs (one common point)
 BLR-CM 12T: 12 static outputs (one common point)
 BLR-CM 12RT: 6 static outputs, 6 relays (two separate common points)

Optional features:

-MB: RS485 with Modbus RTU protocol

Different auxiliary voltage on request

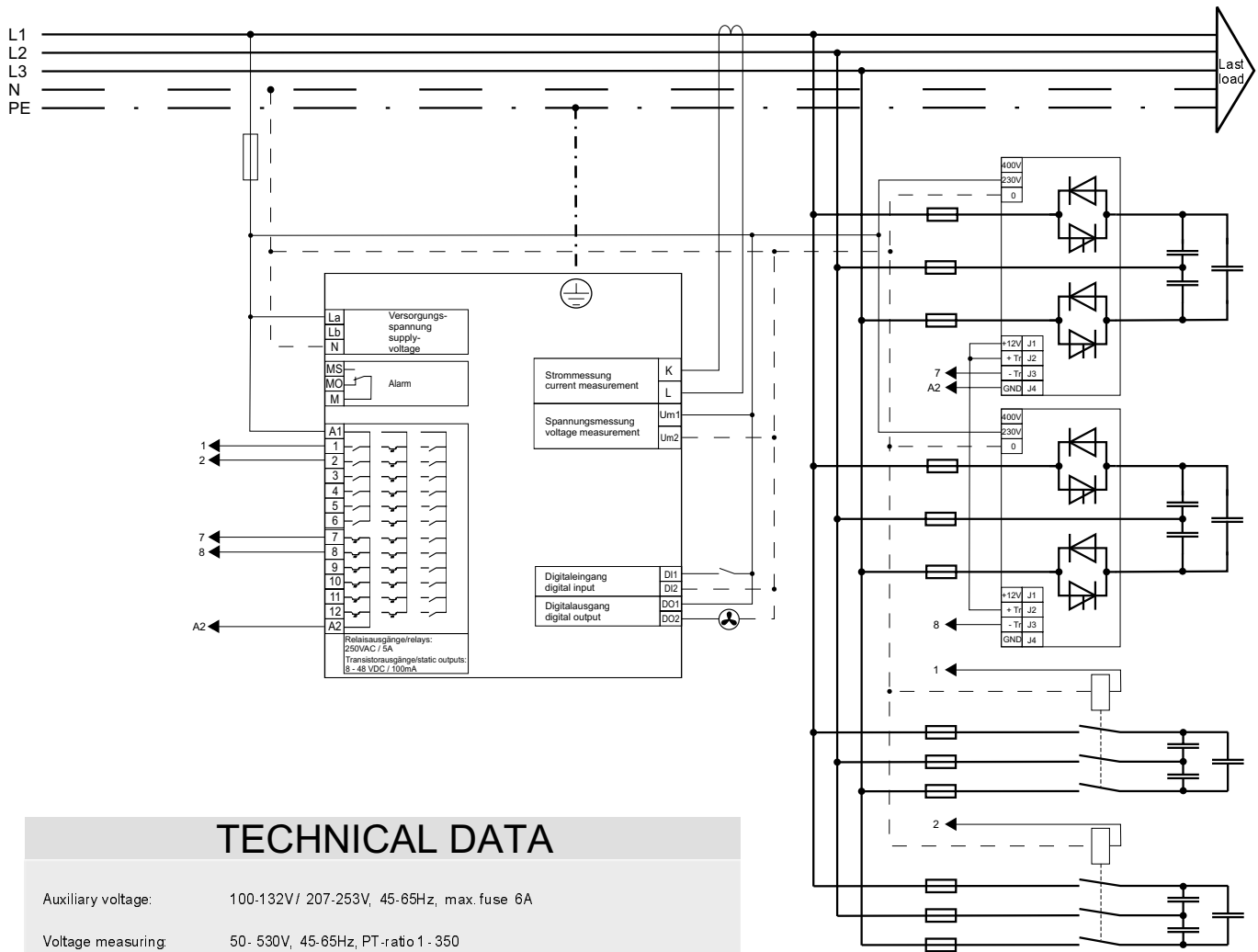
SUPERVISION

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



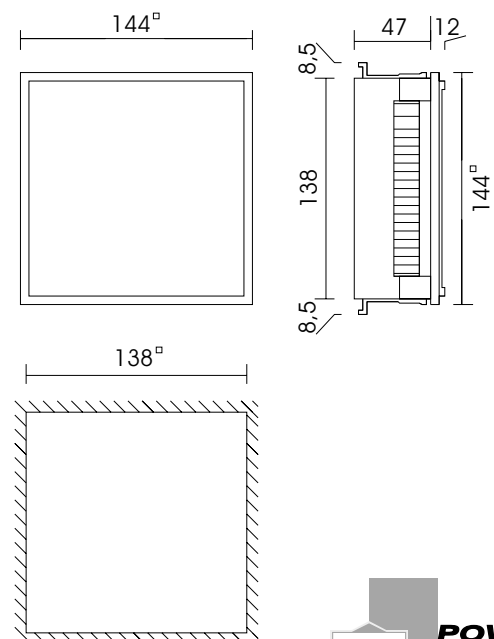
CONNECTION DIAGRAM



TECHNICAL DATA

Auxiliary voltage:	100-132V / 207-253V, 45-65Hz, max. fuse 6 A
Voltage measuring:	50- 530V, 45-65Hz, PT-ratio 1 - 350
Current measuring:	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



More Products from Beluk:

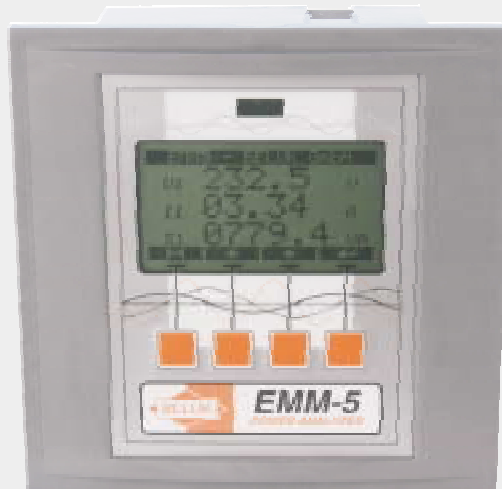
Static - Contactor **BEL-TS**

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: