

# KSR



The protection relays KSR protect your Expensive assets reliably, and this at a very competitive price. This relay measures, warns, and switches capacitor banks off before huge damage can happen. The 7 measuring channels and the wide range of product versions make it suitable for various applications.

### 7 Measurement Channels

There are 3 voltage and 4 current measuring channels in the KSR, so the range of possible connections for monitoring capacitors is very versatile. This way 4 capacitor pairs (3-phase) can be monitored simultaneously using their star point, or one capacitor pair (3-phase) can be monitored using all 3 phases of current and voltage (see example application drawings).

### Sophisticated Measuring and Monitoring System

The measurement system of the KSR offers a total of 7 input channels (3 for voltage, 4 for currents). The CT ratio is programmable in a range of 1 – 10000. Current input 1 to 3 share the same CT ratio, whereas channel 4 can be programmed with a different CT ratio.

In total there are 32 protection settings available. A total of 6 relays are available for alarm signals, among them 2 c/o and 4 n/o relays. These relays can be "or" linked so that they are dependent on several alarm conditions. In addition to the alarm relays, also alarm messages can be displayed on the LCD display.

### Galvanically Isolated Current Inputs

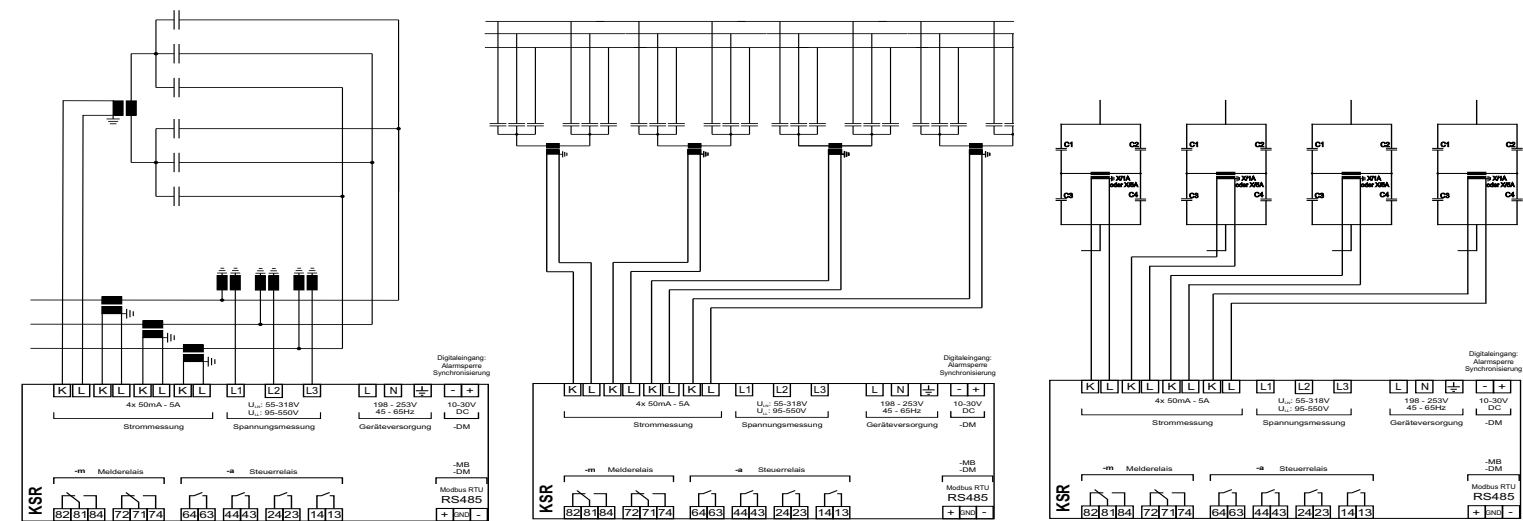
The current input of the KSR is galvanically isolated- this protects the device against damage through accidental overcurrent. An input current of 200A for 1 second will not harm the KSR. In case of an overcurrent at the current input, the device stays intact and your investment is protected.

### Data Memory and Modbus RS485 Communication (Optional)

The KSR can be equipped with a fault recorder. Every fault or alarm is recorded with its source, date/ time, limit and max value. The option "-DM" also comes with Modbus communication interface, and a digital input for blocking alarms. The capacitor protection relays BELUK KSR monitor and protect you valuable facility at a very competitive price. The KSR will measure, warn and if needed switch off capacitors before major damage will occur. With 7 measuring channels and the product variations, the KSR is fit for almost any application.

### Product- Variation „Z“

The KSR-Z offers factory pre-programmed protection settings, which are based on tripping curves following ANSI (American National Standards Institute) standards. An alarm will be dependent on the violation of a trigger value and the time of the violation according to the tripping curve. Nothing has to be adjusted by the operator, since everything is pre-programmed. This makes commissioning work easy and fast; no additional software is needed. Following parameters can be adjusted, each with a trip and an alarm value: OL (Overload), Olth (Overload thermal), Olf (Overload fundamental), UL (Underload), OV (Overvoltage), UV (Undervoltage), UB (Unbalance), EF (Earth Fault), VA (Voltage Assymmetric) By default the KSR-Z comes with a fault recorder, Modbus interface and a digital input. Same as the standard KSR, 3 voltage measurement channels and 4 current measurement channels are available.



### Product- Variation „V“

The KSR-V has a total of seven Voltage measuring Channels. 3 of those are used to measure the mains voltage, and 4 channels measure imbalances. Again, the proven monitoring system of the classical KSR is used here:

32 possible protection settings can be programmed, and again written alarm messages in the display of the unit are available next to 2 c/o plus 4 n/o contacts as output relays.

Technical Data KSR	
Supply Voltage	207 – 253V, 45 – 65Hz, max. fuse 6A (AC type), 80 – 132V (DC- type). Other voltages upon request.
Voltage Measurement	L-N 55V .. 318V, L-L 95V .. 550V, 45 – 65Hz, Vt ratio 1 – 4000
Current Measurement	50mA – 5A (Type 55) oder 20mA – 1A (Type 11), CT required CT ratio 1 – 10000, Current Overload: 20% continuous, 200A for 1 sec. (Option -E)
Power Consumption	<1VA
Switching outputs	2 c/o contacts, voltfree, Switching power: 250V AC / 5A, 30V DC / 5A (ohmic) 4 n/o contacts, voltfree, Switching Power: 250V AC / 5A, 30V DC / 5A (ohmic) alternatively: 4 Opto-couplers, voltfree, Open-collector, Switching Power: 250V DC / 0,1A
Digital Input	10-30 VDC
Fan Control	temperature sensor on the back of the device. Programming of outputs for fan control possible

Technical Data KSR-Z	
Voltage Measurement	55/95V – 318/550V, 45-65 Hz, Vt- ratio 1 – 4000
Current Measurement	50 mA – 5 A (Type 55) or 20 mA – 1 A (Type 11), burden 15mOhm, CT required, CT ratio 1 – 10000
Current overload	20% continuous, 200A for 1 Second

Technical Data KSR-V	
Voltage Measurement	55/95V – 318/550V, 45-65 Hz, Vt- ratio 1 – 4000
Voltage measurement for imbalance monitoring	0 – 20V min sensitivity 0,5V, max. 120V continuous.
Switching outputs	2 c/o contacts, voltfree, max. fuse 6A, 4 n/o contacts, voltfree, max. fuse 6A