

# KSR1



This is how uncomplicated and reasonable protection for your capacitors looks like

The KSR1 is a modern single-phase unbalance protection relay. Capacitors in MV or HV compensations use oil as dielectric, which could catch fire in case of a damage. A permanent supervision of the state of the capacitors is therefore essential.

The KSR1 offers many ways to protect the capacitors against internal faults, and can warn and switch off if required (alarm/ trip).



## Wide Range Power Supply

The KSR1 can be connected to any power supply from 40 to 250 V AC as well as 40 to 300 V DC. It is therefore capable to work with normal mains connection or with battery power. There is no need to make a selection.

## 2 Measuring Inputs

The imbalance can be monitored either by using a separate current or voltage measuring input. Permissible currents range from 15 mA to 5 A, permissible voltages from 0,1 to 20 V AC. A wide range of typical monitoring scenarios is covered with the KSR1.

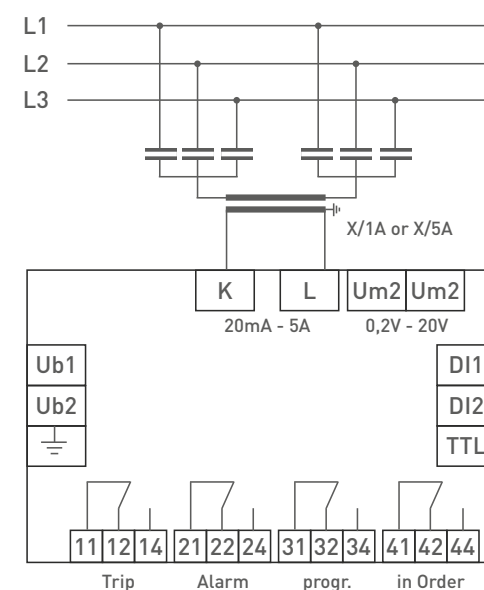
## Programmable Outputs

Each of the 3 output relays has its own parameters. After expiration of the programmed delay time, the corresponding relay will be triggered. After the alarm causing situation is over, the respective relay will be reset automatically or must be reset manually.

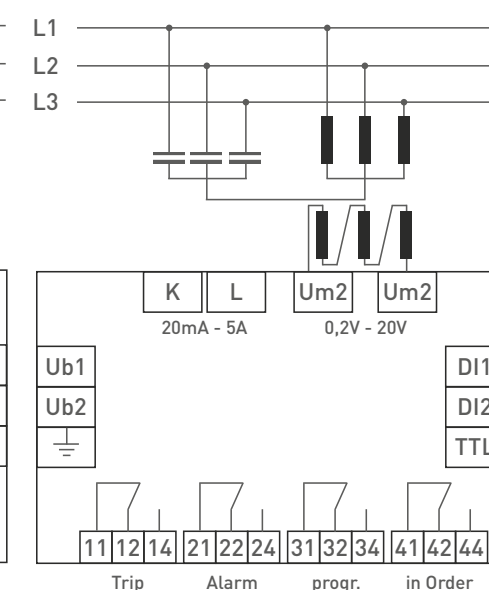
## Option Modbus

Retrofitting the KSR1 with Modbus communication is very simple. A Modbus module can be attached to the back of the relay casing and connected by cable. There is no need to exchange the entire relay if there is a requirement to integrate the KSR1 to a Modbus communication.

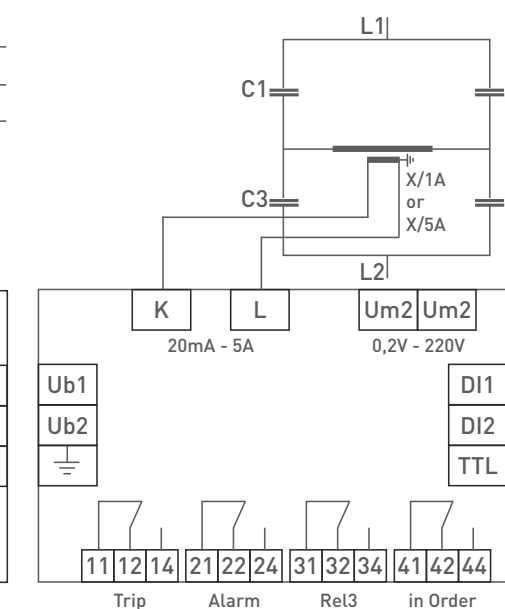
## Double-Star Connection



## Voltage Monitoring



## H-Bridge Connection



## Technical Data

Supply voltage	40 – 250 V AC, 45 – 65 HZ / 40 – 300 V DC, 5 VA; max. fuse 6 A
Measuring Voltage	0.1 – 20 V; burden 240 kOhm, with low-pass filter, Vt- ratio adjustable 1 - 350, Short term overload: 500 V for 10 seconds
Accuracy	0.5 % of upper range value.
Current measurement	15 mA – 5 A; burden 20 mOhm; Ct ratio adjustable 1 - 4000, Continuous overload: 25 A; short term: 100 A / 1 sec
Relay outputs	4 relays, c/o, voltfree, max. fuse 6 A
Functions	Relay 1: Trip, Relay 2: Alarm, Relay 3: programmable (Alarm / Trip / both) Relay 4: Device working OK
Max. output rating AC	1250 VA, max. switching voltage: 440 V AC
Max. output rating DC (ohmic)	30 V / 5 A; 60 V / 1 A; 110 V / 0.5 A; 220 V / 0.3 A