STRIKE TECHNOLOGIES

CPR 500

NUMERIC CAPACITOR / FILTER PROTECTION RELAY

The CPR 500 is a menu driven numeric protection relay designed for comprehensive protection of medium and high voltage capacitor banks and filter intallations.

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OPERATIONAL INFORMATION & SPECIFICATIONS

CPR 500

The CPR 500 is a capacitor and filter bank protection relay that evolved from previous successful models on the foundation of years of continued development. It has a quality embedded into every stage of its design and is manufactured to the strictest quality standards. Combining state of the art hardware technology and software techniques the CPR 500 provides the most convenient functionality in its sphere.

Released in early 2018, the CPR 500 replaces the earlier CPR04 model. Although similar in overall functionality, there have been many major upgrades in hardware, specification, and operation to its predecessor.

The CPR 500 provides comprehensive protection for the capacitive, inductive and resistive elements of three phase medium voltage and high voltage shunt capacitor banks and harmonic filter circuits. The capacitor banks consist of several individual capacitors in a series - parallel arrangement. Each individual capacitor within a bank may be internally or externally fused or unfused. A number of banks are constructed as a single star, double star, delta or H-bridge configuration.

In normal conditions these banks are balanced, i.e. each leg draws the same current as near as practically possible. Should one or more of the capacitor elements fail, the system will become unbalanced and the CPR 500 will sense this and can be used to trip any necessary circuit breakers.

The combination of the protection functionalities in the CPR 500 makes it a product of choice for any power compensation application.

The CPR 500 is exclusively available through Trench Austria (www.trenchgroup.com)

Why buy a CPR 500

The CPR 500 is designed, manufactured and supported in South Africa to comply with international and local standards.

Due to its accuracy and short response times the CPR 500 provides the optimum protection for any system.

The CPR 500 only operates when absolutely essential and thus prevents unnecessary trip-outs limiting financial losses and other detrimental consequences.

CPR 500 trips the associated circuit breaker timeously after a system fault or equipment failure to ensure maximum personnel safety and minimize equipment damage.

The standard CPR 500 has a firm set of protection features with modular communication capabilities allowing the customer larger flexibility with one product.

A removable HMI with full graphics screen driven by a state of the art configuration SW package offers greater flexibility when installing the CPR 500.

Standard CPR 500 is easily convertable for 16.6Hz within the Rail industry.

Key features and functions

Specifications

Temperature	Operating Range:	-10 TO +55ºC	
Humidity	Operating Range:	Up to 93% RH	
Aux Power Supply	Option 1:	(100-230VAC)(110-250VDC)	
	Option2:	(32-42VAC)(24-60V VDC)	
Relay Outputs	Control:	K1 to K5 SPDT, N/O & N/C	5A: 264Vac to 250Vdc
	Watchdog:	K6 SPDT, N/O & N/C	5A: 264Vac to 250Vdc
	Signal:	SR1 to SR3 SPST, N/O	200mA 250Vac or 250Vdc
Inputs	B on, Reset & Remote trip:	Input 1, 2 & 3, 4 & 5 spare	30 - 110V AC/DC
Comms	Types:	HMI	USB 1x A 1x B
		Plugin expansion modules	RS485
			TCP/IP-RS485
			Ethernet Port - RS485
IP	Front:	HMI	IP51
	Rear:	Behind panel door	IP20
CT's	QTY: 4 1A or 5A:	Burden: 1A ≤0.04VA 5A ≤1VA	
	Element 1,2 &3:	Ith>, Ith>> I1>, I1>>, I1<, Irms>, Irms>>	
	Element 4:	Iub_al>, Iub>, Iub>> I1ub>, I1ub>>	
	Element 5 (virtual):	I_0>, I_0>>	

The CPR incorporates an impressive range of protection functions

- Thermal over-current
- Fundamental earth fault current
- Fundamental frequency over-voltage and over-current
- Fundamental frequency undercurrent
- RMS over-current
- Breaker Fail detection
- Fundamental frequency star point unbalance
- Capacitor bank re-switching
- Fundamental frequency line current unbalance
- Repetitive peak over-voltage
- Fundamental frequency H-bridge configuration
- Event tripping
- Unbalance

Finer protection accuracy is achieved through compensation for the capacitor bank neutral system unbalance.

The protection engineer can set parameters for optimum protection and also compensate for the natural unbalance in capacitor banks, increasing closer protection settings reducing spurious trips while achieving finer protection settings.

Finer protection settings reduce the risk of damage, down time and replacement costs. The CPR 500 also allows the user to determine where the problem occurred in the capacitor bank phases, reducing further downtime.

English & German language co-reside in the HMI and the management SW. The user can select their preference.

To facilitate remote communication either front USB (Local connection) and rear plug-in expansion modules are available.

The CPR 500 logs data on all important parameters.

N & H-Bridge functions come standard in all CPR 500.

The Capacitor discharge interlock timer inhibits the breaker closing via output control relay.

All protection functions in the CPR 500 continue to be active even while the HMI is removed (hot connected or disconnected)

The main relay pluggable with CT shorting facility on removal.

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