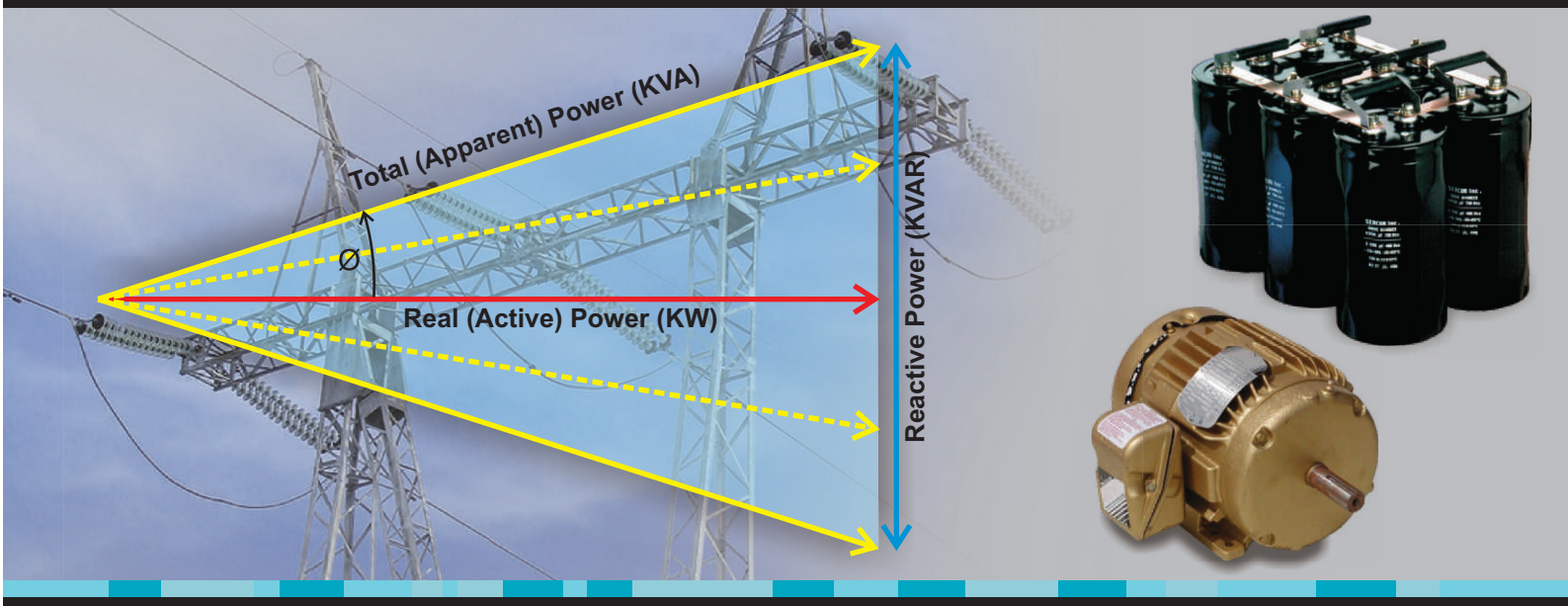
ACCUVAR & VARLOG

INTELLIGENT 3Ø VAR Controllers



TRINITY

Making Energy Matter

The ACCUVAR family of VAR controllers consists of two products, with ACCUVAR as the base model, and other models with a host of value enhancing features. Both the models are Microcontroller based, with designs that have been field proven for more then fourteen years. The main features of the VAR controllers are:

Comprehensive Polyphase Measurement

Both the models are three phase measuring controllers, and hence need three CT inputs from the mains and also all the three phase and neutral connections. So, in addition to accurate control of VAR, these models also provide comprehensive electrical measurement. The parameters measured and displayed (depending on model selected) are all voltages, currents, power factor, all powers and all energies, average PF maintained since last reset and THD figures for voltages and currents.

Ease of installation

All models have an ***autosense*** feature, which senses the sizes of the capacitor banks connected on each stage automatically. No need to programme C/K or bank sizes manually.

Low current operation

Since there is no fixed sequence of switching capacitors, if very small capacitor banks are connected, these controllers sense down to 1% of the main load and take corrective action.

Intelligent Control

The control parameter is VAR, and not PF. Target PF value is just used to calculate the capacitive VAR required to be added/removed to achieve the desired PF. e.g. If the target PF is unity, means that the target VAR in the system is zero. If system KVAR is 200 lagging, then the controller needs to add 200 KVAR of capacitor banks to reach zero VAR.

The calculation of the reactive power in the system is done by taking instantaneous samples of all voltage and current waveforms, in all four quadrants. These values are then subjected to DSP techniques to add a frequency independent 90° phase shift to current samples. The product of these voltage and current samples then generate signed VAR value.

VAR controller then takes into calculation the prevailing system KVAR, the prevailing bank KVAR and the bank sizes of each stage, and then switches ON/OFF the combination which is closest to the needed VAR.

Comparison Chart

Feature	Description	ACCUVAR (Opto-isolators)	ACCUVAR	VARLOG
No. of stages (Relay outputs)	5A @ 230 VAC, Resistive load	15	15	12
ALARM on THD		-	-	Y
ALARM on PF Value		Y	Y	Y
Rs485 Port (Option)	Supporting MODBUS-RTU protocol, for integration with SCADA/EMS	Y	Y	Y
Data Logging	USB 2.0 port for downloading of 2Mbytes of data	-	-	Y
THD Mesaurement		-	-	Y
Temp Sensing Alarm		-	-	Y
Fast Thyristor Switching outputs		Y	-	-
LED Stage Indication		Y	Y	-
LC Display		16 x 1	16 x 1	16 x 2

Technical Specifications

Parameter			
Type		**Name**	**Statistics**
INPUT		Supply	Three Phase and Neutral of a 3P4W system
		Voltage	Direct Voltage Input : Up to 300 V L-N Burden: 0.5 VA
		Current	Secondary Current Input: 5A or 1 A (To be specified at the time of ordering) Range of Reading: 0 – 5000 A Burden: < 1.0 VA Overload: 5A CT = 6A RMS Continuous 1A CT = 1.2A RMS Continuous
		Power Supply	Self Powered from mains Wide operating Voltage SMPS: 80 VAC – 480 VAC, 50-60 Hz
OUTPUT		Relay	Switching Voltage: Max. 250 VAC Switching Power: Max 1000 W Expected Mechanical Life: >10 x 10^6 switching operations Expected Electrical Life : >4 x 10^6 switching operations @ (Load = 200 VA, Cosφ = 0.5)
		Opto for fast ACCUVAR	
MEASUREMENT	True RMS Basic Parameters	Voltage (Volts L-N: VRN, VYN, VBN)	Accuracy: 0.5% of Reading
		Current (Amps IR, IY, IB)	CT Ratio: Site Selectable Accuracy : 0.5% of Reading
		Capacitor Current	CT Ratio: Site Selectable Accuracy : 1.0% of Reading
		Line Frequency	45 to 55 Hz, Accuracy : 0.3% of Reading
	Power	Active Power (P)	Accuracy : 1.5% of Reading (For IPFI>0.9)
		Reactive Power (Q)	Accuracy : 2.0% of Reading (Between 0.5 Lag to 0.8 Lead)
		Apparent Power (S)	Accuracy : 1.0% of Reading
		Power Factor	Accuracy : 1.0% of Reading (IPFI≥0.5) Range of Reading : 0.005 to 1.00 Lag/ Lead
	Energy	Total Active Energy (KWh)	Range of Reading : 0 to 9999999.9 Accuracy : 0 S as per IS13779
		Total Apparent Energy (KVAh)	Range of Reading : 0 to 9999999.9 Accuracy : 1.0% of Reading
	Power Quality	THD for each voltage (Not in ACCUVAR)	
		THD for each current (Not in ACCUVAR)	
	Misc.	Cap. Bank KVAR	
		Run time	
		Temperature (only in VARLOG)	Accuracy: ± 1°C
		Data logging buffer (only in VARLOG)	2 Mbytes
		Logging Interval (only in VARLOG)	Site Selectable (from 20sec to 180sec)
MISCELLANEOUS	Dimensions	Bezel	144 x 144 mm
		Panel Cutout	138 X 138 mm
		Depth of installation	55 mm
		Depth of installation	76 mm
		Operating temp	10° C to 50° C
		Weight	0.82 Kgs
		Min. Operating Current	1% of CT primary