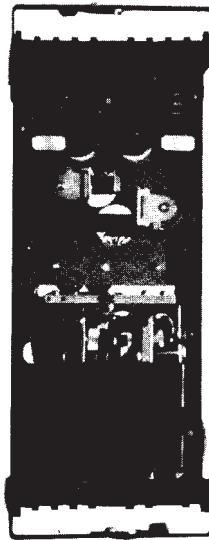


High Speed Undervoltage and Voltage-balance Relays.



CFV & CFVB

Voltage Relays

APPLICATION

Undervoltage Phase-fault Detection is provided by the CFV12 relay and is used in preference to the ICR when high-speed operation is desired. The drop-out on a phase-to-phase fault will be approximately 20 percent lower than the calibrated dropout on a 3-phase fault. Where more accurate fault detection is required, it is recommended that three single-phase CFV16A relays be used. They will have the same dropout on single-or three-phase faults.

Phase Sequence of a three-phase system can be continuously checked by the CFV12 relay in addition to providing undervoltage fault detection.

Ground-Fault Detection is provided by the CFV16B relay using one single-phase relay across the broken-delta corner of a wye-delta transformer.

Voltage -balance Relays of the CFVB11B type, are used to block other relays or devices that will operate incorrectly when a potential transformer fuse blows. They require two sets of potential transformers that normally receive the same primary voltage during the time when blown-fuse protection is required.

Contact Rating

Current Closing - 30 amperes, 250 volts maximum.

Current Carrying Ratings are limited by the different ratings of the target and holding coils. The choice of these ratings depends on the current taken by the tripping circuit.

Target and Holding Coil Ratings - AC or Amperes

Rating of Coil	1 amp	0.2 amp
Tripping Duty	30.0	5.0
Carry Continuously	2.0	0.5

The dc resistance of the target coil and the holding coils are 0.25 ohms each for the 1.0-amp target, 7 ohms each for the 0.2-amp target. For the universal target, the resistance is 0.13 ohms for the 2-amp tap and 7 ohms for the 2-amp tap.

Selection Guide

Frequency (Hz)	Voltage	Calibration Range (Dropout Volts)	Holding Coil (Amps dc)	Target Coil (Amps dc)	Model Number	Case Size	Approx. Wt. lb. (kg)	
							Net	Ship

Single-Phase Voltage 1-N.O., 1-N.C. - Target and Holding Coil on N.C. Contact-Shorting Bar Across N.O. Contact

60	115	15-45	1.0	1.0	12CFV16A4A A5A A6A A1A A2A A3A A15A	S1	12 (5.4)	18 (8.1)
		15-45	0.2	0.2				
		30-105	1.0	1.0				
		30-105	0.2	0.2				
		30-105	—	—				
		30-105	—	1.0				
50	110	30-105	0.2	0.2	A17A			

Single-Phase Voltage 1-N.O., 1-N.C. - Target and Holding Coil on N.C. Contact-Shorting Bar Across N.C. Contact

60	115	15-45	1.0	1.0	12CFV16B4A B5A B6A B1A B2A B3A	S1	12 (5.4)	18 (8.1)
		15-45	0.2	0.2				
		30-105	1.0	1.0				
		30-105	0.2	0.2				
		30-105	—	—				
		30-105	—	—				

Three-Phase Undervoltage and Phase Sequence 1-N.O., 1-N.C. (Holding Coil on Both)

60	115	30-120 30-120	1.0 0.2	1.0 0.2	12CFV12A3A A4A	S1	12 (5.4)	18 (8.1)
50	115	30-120 30-120	0.2 1.0	0.2 1.0				



CFV & CFVB

Voltage Relays

Frequency (Hz)	Rated Voltage	Calibration Range (Dropout Volts)	Model Number	Aux. Relay Voltage (dc)	Case Size	Approx. Wt. in lb (kg)	
						Net	Ship

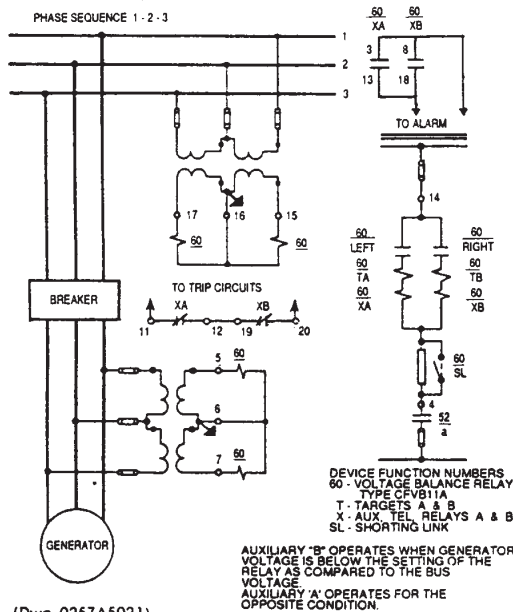
Three-Phase Voltage Balance 2-N.C. and 1-N,O.

60	120	50-95% of rated voltage on either source when other source is 100% same.	12CFVB11B1A B5A B6A	125/250 48/125 110/220	M2	22 (9.9)	34 (15.4)
50	100 120						

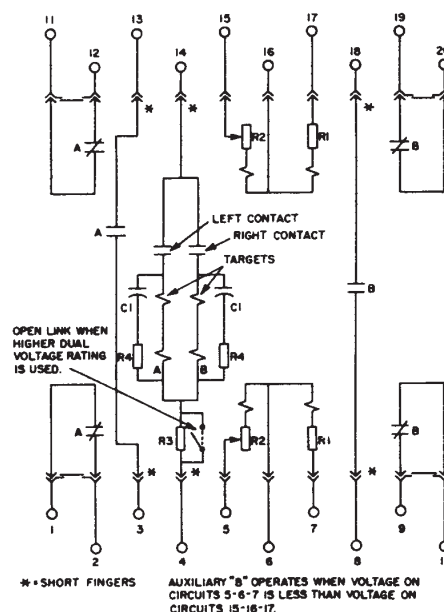
BURDENS

CFV								CFVB (120 Volts)					
Relay	Volts	Freq.	Dropout	Studs	Watts	Vars.	Volt-Amp.	Circuit	Frequency (Cycles)	Impedance (Ohms)	P.F.	V. A.	
CFV12A	115	60	6-25	5-6	3.8	3.9	5.4	5-6	60	5075	0.97	2.83	
			6-25	7-8	11.0	12.2	17.0	6-7		2240	0.97	6.43	
			30-120	5-6	3.8	3.9	5.4	15-16		5075	0.97	2.83	
		30-120	7-8	11.8	12.2	17.0	16-17	2240		0.97	6.43		
		40-160	7-8	11.7	12.3	17.0	50	5-6		5080	0.97	2.83	
		6-25	5-6	4.3	4.5	6.4		6-7		2155	0.97	6.68	
	30-120	5-6	4.3	4.5	6.4	15-16		5080	0.97	2.83			
			50	30-120	7-8	14.2	14.9	20.3	16-17	2155	0.97	6.68	
				6-25	5-6	4.3	4.5	6.4					
				30-120	7-8	14.2	14.9	20.3					
	CF16A or CFV16B	115	60	6-20	5-6	14.4	3.2†	14.8					
				15-45		12.2	1.6†	14.8					
30-105				12.2		1.6†	14.8						
		50	6-20		14.7	3.0†	15.0						
15-45				10.8	2.2†	11.0							
30-105				10.8	2.2†	11.0							
	110	50	30-105		9.0	1.8†	9.2						

†Capacitive



A typical external connection diagram for three-phase voltage balance relay. Type CFVB11B, used to indicate when a potential transformer fuse blows.



An internal diagram for CFVB11B Relay.