

Type Number	Description	V/I	Test Equipment Required	
			Single Phase	Three Phase
21	Distance relay	V+I	DVS3+200ADM	DVS3+50A-3PH <sup>1/3</sup>
24	Volts per Hertz relay	V	DVS3	DVS3
25	Synchronising or synchronism check relay	V	DVS3	
27	Undervoltage relay	V	DVS3 or 200ADM <sup>2</sup>	DVS3
27D	Positive sequence undervoltage relay	V+I	DVS3+200ADM	DVS3+50A-3PH/200ADM <sup>3</sup>
32	Directional power relay	V+I	DVS3+200ADM	DVS3+50A-3PH/200ADM <sup>3</sup>
32P	Reverse real power relay	V+I	DVS3+200ADM	DVS3+50A-3PH/200ADM <sup>3</sup>
32Q	Reverse reactive power relay	V+I	DVS3+200ADM	DVS3+50A-3PH/200ADM <sup>3</sup>
37	Under current relay	I	200ADM	50A-3PH/200ADM <sup>3</sup>
37	Under power relay	V+I	DVS3+200ADM	DVS3+50A-3PH/200ADM <sup>3</sup>
40	Loss-of-excitation (field) relay	V+I	DVS3+200ADM	DVS3+50A-3PH <sup>4</sup>
46	Reverse phase/phase balance current relay	I	-	50A-3PH
46N	Negative sequence overcurrent relay			
47	Reverse phase/phase balance voltage relay	V	DVS3	DVS3
49	Thermal overload <sup>5</sup>	I	200ADM	50A-3PH/200ADM <sup>3</sup>
50	Instantaneous overcurrent	I	200ADM	50A-3PH/200ADM <sup>3</sup>
50N	Instantaneous ground/neutral fault	I	200ADM	50A-3PH /200ADM <sup>3</sup>
50BF	Breaker failure			
50V	Voltage-restrained overcurrent	V+I	200ADM+DVS3	DVS3+50A-3PH/200ADM <sup>3</sup>
51	Inverse time overcurrent	I	200ADM	50A-3PH/200ADM <sup>3</sup>
51N	Inverse time ground/neutral fault	I	200ADM	50A-3PH/200ADM <sup>3</sup>
51LR	Excessive starting time/locked rotor			
51V	Voltage-restrained inverse time overcurrent	V+I	200ADM+DVS3	DVS3+50A-3PH/200ADM <sup>3</sup>
55	Power factor relay	V+I	200ADM+DVS3	DVS3+50A-3PH/200ADM <sup>3</sup>
59	Over voltage	V	200ADM or DVS3 <sup>2</sup>	DVS3
59G	Neutral voltage	V	DVS3	DVS3

<sup>1</sup> With some limitations

<sup>2</sup> DVS3 allows greater flexibility and accuracy

<sup>3</sup> Most relays may be tested by injecting current into one phase at a time using the 200ADM

<sup>4</sup> With some limitations on some specific relays – no phase shift is available between currents

Type Number	Description	V/I	Test Equipment Required	
			Single Phase	Three Phase
59N	Neutral voltage displacement	V	DVS3	DVS3
59pos	Positive sequence overvoltage			
60	Voltage or current balance relay	V/I <sup>6</sup>	6	6
60FL	VT fuse failure			
62	Time delay	I <sup>6</sup>	200ADM <sup>6</sup>	
63	Buchholz gas detection/pressure	-	-	-
64	Ground fault			
64S	Stator ground fault			
67	Directional overcurrent	V+I	DVS3+200ADM	DVS3+50A-3PH/200ADM <sup>7</sup>
67N	Directional ground fault	V+I	DVS3+200ADM	DVS3+50A-3PH/200ADM <sup>7</sup>
67NC	Directional ground fault carrier			
68	Blocking relay			
76	DC overcurrent relay	I	200ADM <sup>8</sup>	
78	Phase angle measuring relay	V/I	DVS3/DVS3+200ADM <sup>9</sup>	DVS3/DVS3+50A-3PH
79	Re-closer	I	200ADM	50A-3PH
81H	Over frequency	V	DVS3	DVS3
81L	Under frequency	V	DVS3	DVS3
81R	Rate of change of frequency	V	DVS3	DVS3
86	Lockout relay	I	200ADM	
87	Differential relay	I	200ADM+200ADM-DRE	
91	Directional voltage relay	V/I	DVS3+200ADM	DVS3+50A-3PH/200ADM <sup>7</sup>

<sup>5</sup> Thermal relays only – not direct temperature measurement

<sup>6</sup> Dependent on exact relay type

<sup>7</sup> Many relays may be tested by injecting current into one phase at a time using the 200ADM

<sup>8</sup> Dependent on relay specification

<sup>9</sup> Dependent on relay operating quantities

**Complete list of device numbers**

1	Master Element	33	Position Switch	63	Pressure Switch	<b>Suffixes</b>	
2	Time-Delay Starting Or Closing Relay	34	Motor-Operated Sequence Switch	64	Ground Protective Relay	A	Amps or alternating
3	Checking Or Interlocking Relay	35	Brush-Operating or Slip-Ring Short-Circuiting Device	65	Governor	BF	Breaker failure
4	Master Contactor			66	Notching Or Jogging Device	C	Current
5	Stopping Device	36	Polarity Device	67	AC Directional Overcurrent Relay	D	Direct/Discharge
6	Starting Circuit Breaker	37	Undercurrent Or Underpower Relay	68	Blocking Relay	F	Frequency/Feeder/Failure
7	Rate of Change Relay	38	Bearing Protective Device	69	Permissive Control Device	FL	Fuse failure
8	Control Power Disconnecting Device	39	Mechanical Condition Monitor	70	Electrically Operated Rheostat	G	Ground
9	Reversing Device	40	Field Relay	71	Level Switch	H	harmonics
10	Unit Sequence Switch	41	Field Circuit Breaker	72	DC Circuit Breaker	I0	Zero sequence current
11	Multifunction device	42	Running Circuit Breaker	73	Load Resistor Contactor	I+,I1	Positive sequence current
12	Overspeed Device	43	Manual Transfer Or Selector Device	74	Alarm Relay	I-,I2	Negative sequence current
13	Synchronous-Speed Device	44	Unit Sequence Starting Relay	75	Position-Changing Mechanism	J	Differential
14	Underspeed Device	45	Atmospheric Condition Monitor	76	DC Overcurrent Relay	L	Line/Level
15	Speed, Or Frequency Matching Device	46	Reverse-Phase or Phase Balance	77	Tele-metering Device	LR	Locked Rotor
16	(Reserved For Future Application)		Current Relay	78	Phase-Angle Measuring Relay	M	Motor
17	Shunting Or Discharge-Switch	47	Phase-Sequence or Phase Balance	79	Re-closing Relay	N	Neutral or ground
18	Accelerating Or Decelerating Device		Voltage Relay	80	Flow Switch	NC	Neutral or ground carrier
19	Starting To Running Transition	48	Incomplete Sequence Relay	81	Frequency Relay	neg	Negative sequence
	Contactors	49	Machine Or Transformer Thermal Relay	82	DC Reclosing Relay	P	Real power/phase comparison/
20	Electrically Operated Valve			83	Automatic Selective Control Or Transfer Relay		polarising
21	Distance Relay	50	Instantaneous Overcurrent Relay			pos	Positive sequence
22	Equaliser Circuit Breaker	51	AC Time Overcurrent Relay	84	Operating Mechanism	PF	Power factor
23	Temperature Control Device	52	AC Circuit Breaker	85	Carrier Or Pilot-Wire Relay	Q	Reactive power
24	Volts per Hertz Relay	53	Exciter Or DC Generator Relay	86	Lockout Relay	V	Voltage
25	Synchronising Or Synchronism Check Relay	54	Turning Gear Engaging Device	87	Differential Protective Relay	VAR	Reactive power
		55	Power-Factor Relay	88	Auxiliary Motor or Motor Generator	S	Stator or synchronising
26	Apparatus Thermal Device	56	Field Application Relay	89	Line Switch	T	Transformer
27	Undervoltage Relay	57	Short-Circuiting Or Grounding Device	90	Regulating Device		
28	Flame Detector	58	Rectifier Failure Relay	91	Voltage Directional Relay		
29	Isolating Contactor	59	Overvoltage Relay	92	Voltage And Power Directional Relay		
30	Annunciator Relay	60	Voltage or Current Balance Relay	93	Field-Changing Contactor		
31	Separate Excitation Device	61	Density Switch or Sensor	94	Tripping Or Trip-Free Relay		
32	Directional Power Relay	62	Time Delay Stopping or Opening Relay	95-99	(Reserved For Special Applications)		