Order Number _____ Serial Number _____

PRODUCT/TEST MANUAL

1M335K1

REMOTE/LOCAL INTERFACE RACK

Issue Level	Date	Summary of changes
A	06/03/1996	Initial issue.

Author	Checked & Registered	.pdf file created	Released
ERL	MW	MW	Digitally signed by Michael Williams cn=Michael Williams, ou=Test Room, o=Relay Monitoring Systems, c=AU Date: 2001.09.10 07:22:02 +11'00' Reason: Document is released

1. BROAD DESCRIPTION

The 1M335K1 is a 485mm rack mounted relay assembly containing twenty four individual control points. Its function when used in 66/22Kv zone substations is to interface the controls and protection inhibits in the control of circuit breakers.

2. SPECIFICATIONS

DC Auxiliary Voltage	24 volts DC +/- 15%
Ambient Temperature Range	0^0 - 55^0 Celsius
Relative Humidity	to 90%

Industry standard 485 mm rack mounting Opening front door to allow access to relays Plug in relays for ease of replacement Insensitive to shock and vibration Latching (bi-stable) relays Lamp test facility

Insulation Test:
Sockets & terminal rail IEC 255-4, Appendix E Class II circuits

Contact ratings

Continuous Amps AC 50Hz	> 5

Minimum make & carry (Amps AC 50 Hz, 250 Vac) for inductive load L/R 10 msec (all relays) ≥30

Minimum breaking capacity (all relays)	250 Vac 50 Hz PF .6
Continuous withstand across open contacts	≥250/300
Short time voltage withstand (open contacts)	≥800
Electrical life (number of operations)	$\geq 10^6$

Bi-stable relays

Minimum pulse to energise (seconds)	≤1
Maximum pulse time (seconds)	≥10

Maximum operating frequency (operations/hour) at nominal load. ≥100

Maximum operating frequency at no load (operations/hour)	≥200

3. TEST EQUIPMENT REQUIRED

24 Volt DC supply	Continuity Tester
1M335 Test Jig	High Voltage Test Equipment

4. ASSOCIATED DRAWINGS

157-335-201	Sheets 1 & 2	Schematic Diagram

5. HIGH VOLTAGE TESTING

CLASS II (B) TEST CATEGORY

Using the high voltage test fixture, plug it into each socket in turn applying 500 volts DC between the test fixture and frame. Any flashover is to be considered a failure. Repeat the above procedure using the 1Kv impulse tester, again any flashover is deemed to be a failure.

Repeat the above tests for the rail mounted terminals.
The wiring from the rail mounted terminals on the rear of the unit are connected to the sockets, so they are considered as part of the Class II Tests.

6. TEST PROCEDURE

a. Place the test jig plugs into the sockets as specified in the following test procedure sheets. Using template P8 operate the push buttons as instructed, ensure that the appropriate LED's change state.

b. Perform the above test using the rest of the templates numbered P9 to P19.

c. With each change of the P8 test lead depress the "Earth test" button, this tests the frame connection in each of the sockets.

6. TEST PROCEDURE (Cont)

Socket Tested	Push Button	Relay	Socket/Pin	Control Output

Select Plugs P1 and P5

P8	P1-1	RL3-1	P8-3	CONTROL POINT 1
		RL3-2	P8-20	
		RL3-3	P5-1	
	P1-3	RL5-1	P8-21	CONTROL POINT 2
		RL5-2	P8-4	
		RL5-3	P5-3	

P9	P1-14	RL7-1	P9-3	CONTROL POINT 3
		RL7-2	P9-20	
		RL7-3	P5-25	
	P1-25	RL9-1	P9-21	CONTROL POINT 4
		RL9-2	P9-4	
		RL9-3	P5-27	

P10	P1-27	RL11-1	P10-3	CONTROL POINT 5
		RL11-2	P10-20	
		RL11-3	P5-9	
	P1-21	RL13-1	P10-21	CONTROL POINT 6
		RL13-2	P10-4	
		RL13-3	P5-5	

Change Plug from P1 to P2

P11	P1-1	RL15-1	P11-3	CONTROL POINT 7
		RL15-2	P11-20	
		RL15-3	P5-16	
	P1-3	RL17-1	P11-21	CONTROL POINT 8
		RL17-2	P11-4	
		RL17-3	P5-13	

6. TEST PROCEDURE (Cont)

Socket Tested	Push Button	Relay	Socket/Pin	Control Output

Change Plug from P5 to P6

P12	P1-14	RL19-1	P12-3	CONTROL POINT 9
		RL19-2	P12-20	
		RL19-3	P6-1	
	P1-25	RL21-1	P12-21	CONTROL POINT 10
		RL21-2	P12-4	
		RL21-3	P6-3	

P13	P1-27	RL23-1	P13-3	CONTROL POINT 11
		RL23-2	P13-20	
		RL23-3	P6-25	
	P1-25	RL25-1	P13-21	CONTROL POINT 12
		RL25-2	P13-4	
		RL25-3	P6-27	

Change Plug from P2 to P3
Change Plug from P20 to P21

P14	P1-1	RL27-1	P14-3	CONTROL POINT 13
		RL27-2	P14-20	
		RL27-3	P6-9	
	P1-3	RL29-1	P14-21	CONTROL POINT 14
		RL29-2	P14-4	
		RL29-3	P6-5	

P15	P1-14	RL31-1	P15--3	CONTROL POINT 15
		RL31-2	P15-20	
		RL31-3	P6-16	
	P1-25	RL33-1	P15-21	CONTROL POINT 16
		RL33-2	P15-4	
		RL33-3	P6-13	

6. TEST PROCEDURE (Cont)

Socket Tested	Push Button	Relay	Socket/Pin	Control Output

Change Plug from P6 to P7

P16	P1-21	RL35-1	P16-3	CONTROL POINT 17
		RL35-2	P16-20	
		RL35-3	P7-1	
	P1-27	RL37-1	P16-21	CONTROL POINT 18
		RL37-2	P16-4	
		RL37-3	P7-3	

Change Plug from P3 to P4

P17	P1-1	RL39-1	P17-3	CONTROL POINT 19
		RL39-2	P17-20	
		RL39-3	P7-25	
	P1-3	RL41-1	P17-21	CONTROL POINT 20
		RL41-2	P17-4	
		RL41-3	P7-27	
P18	P1-14	RL43-1	P18-3	CONTROL POINT 21
		RL43-2	P18-20	
		RL43-3	P7-9	
	P1-25	RL45-1	P18-21	CONTROL POINT 22
		RL45-2	P18-4	
		RL45-3	P7-5	
P19	P1-21	RL47-1	P19-3	CONTROL POINT 23
		RL47-2	P19-20	
		RL47-3	P7-16	
	P1-27	RL49-1	P19-21	CONTROL POINT 24
		RL49-2	P19-4	
		RL49-3	P7-13	

6. TEST PROCEDURE (Cont)

LED's illuminated for P20 & P21

	P20			P21	
Un-operated		**Operated**	**Un-operated**		**Operated**
RL3-4	P20-3	P20-2	RL27-4	P21-3	P21-2
RL5-4	P20-14	P20-8	RL29-4	P21-14	P21-8
RL7-4	P20-25	P20-20	RL31-4	P21-25	P21-20
RL9-4	P20-27	P20-28	RL33-4	P21-27	P21-28
RL11-4	P20-21	P20-26	RL35-4	P21-21	P21-26
RL13-4	P20-9	P20-15	RL37-4	P21-9	P21-15
RL15-4	P20-5	P20-4	RL39-4	P21-5	P21-4
RL17-4	P20-24	P20-7	RL41-4	P21-24	P21-7
RL19-4	P20-16	P20-22	RL43-4	P21-16	P21-22
RL21-4	P20-13	P20-11	RL45-4	P21-13	P21-11
RL23-4	P20-6	P20-19	RL47-4	P21-6	P21-19
RL25-4	P20-10	P20-23	RL49-4	P21-10	P21-23

7. GENERAL & FUNCTIONAL

Check that the relay is electrically sound and mechanically robust as per Standard Inspection & Test Schedule 903-000-026.

PASS ☐

TESTED BY: _____DATE: _____

8. CONNECTION DIAGRAM

Refer to drawings 157-335-201 Sheets 1 and 2