

Checklist of CEM TCM C25_C25 CVF2

TCM-C25 CVF2 CARD

Isolation Checks

Step1: Isolation between Relay coil (chain 1, 2 & 3)

SL.No.	Pin Details	Pin Description	Observed		Expected
			ISRC	FSRC	
1.	TMR 1-4 wrt TMR 2-4	28V coil live points	>100MΩ	>100MΩ	>100MΩ
2.	TMR 1-4 wrt TMR 3-4	28V coil live points	>100MΩ	>100MΩ	>100MΩ
3.	TMR 2-4 wrt TMR 3-4	28V coil live points	>100MΩ	>100MΩ	>100MΩ

STEP 2- TMR 1-4, TMR 2-4 & TMR 3-4 pins shorted together and its isolation to contact inputs, outputs & midpoints measured

SL.No.	Pin Details	Pin Description	Observed		Expected
			ISRC	FSRC	
1	TMR1-4 wrt TMR1-1	Coil & contact i/p (P)	>100MΩ	>100MΩ	>100MΩ
2	TMR1-4 wrt TMR2-1	Coil & Inst Live	>100MΩ	>100MΩ	>100MΩ
3	TMR1-4 wrt TMR3-1	Coil & contact i/p (R)	>100MΩ	>100MΩ	>100MΩ
4	TMR1-4 wrt PO-1, 4 to10, 12,13,15 to 22, 45, 46, 47, 77	Coil & contact o/p	>100MΩ	>100MΩ	>100MΩ
5	TMR1-4 wrt TMR1-35 to 42, TMR2-35 to 42, TMR3-35 to 42, PO-48 to 50, 23, 60	Coil & cmd Mid points	>100MΩ	>100MΩ	>100MΩ

STEP 3 –TMR 1-4, TMR 2-4 & TMR 3-4 (Relay coil live-chain1,2 & 3) isolated and isolation between the following points measured.

SL. No.	Pin Details	Pin Description	Observed		Expected
			ISRC	FSRC	
1	TMR 2-1 wrt TMR 1-1	Inst Live & contact i/p (P)	>100MΩ	>100MΩ	>100MΩ
2	TMR 2-1 wrt TMR 3-1	Inst Live & contact i/p (R)	>100MΩ	>100MΩ	>100MΩ
3	TMR2-1 wrt PO-1, 4 to10, 12,13,15 to 22, 45, 46, 47, 77	Inst Live & contact o/p	>100MΩ	>100MΩ	>100MΩ
4	TMR2-1 wrt TMR1-35 to 42, TMR2-35 to 42, TMR3-35 to 42, PO-48 to 50, 23, 60	Inst Live & cmd Mid points	>100MΩ	>100MΩ	>100MΩ

List of Connectors in the package

1. TMR1 ,TMR2 and TMR3=44 pin M,
2. PO,RO=78 pin Female

Continuity Checks

Sl No	Pin Details	Description	Expected	Results	
				ISRC	FSRC
1	TMR2-1 w.r.to TMR3-44	Inst Live	0.1 Ω -0.5 Ω	208mΩ	206mΩ
2	TMR2-1 w.r.to PO-24	Inst & spare3 STS mon	1.039kΩ ± 2%	1.040kΩ	1.040kΩ
3	PO-24 w.r.to PO-25	Spare3 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
4	PO-24 w.r.to PO-26	Spare3 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
5	PO-25 w.r.to PO-26	Spare3 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
6	PO-1 w.r.to RO-1	Spare3 O/Ps	0.3 Ω -0.7 Ω	538mΩ	523mΩ
7	PO-1 w.r.to PO-51	Spare3 O/P & mon	33.2kΩ + 2%	33.173kΩ	33.178kΩ
8	PO-51 w.r.to PO-61	Spare3 mon & GND	2.21kΩ ± 2%	2.210kΩ	2.210kΩ

9	PO-61 w.r.to RO-61	GND	<250mΩ	181mΩ	179mΩ
10	TMR1-34 w.r.to TMR2-34	Inst rtn	0.6 Ω -1 Ω	835mΩ	829mΩ
11	TMR1-1 w.r.to TMR1-2	Contact I/P (P)	<100mΩ	97mΩ	95mΩ
12	TMR3-1 w.r.to TMR3-2	Contact I/P (R)	<100mΩ	63mΩ	62mΩ
13	TMR2-1 w.r.to PO-27	Inst & CMD 57 STS mon	1.039kΩ ± 2%	1.040kΩ	1.040kΩ
14	PO-27 w.r.to PO-28	CMD 57 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
15	PO-27 w.r.to PO-29	CMD 57 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
16	PO-28 w.r.to PO-29	CMD 57 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
17	PO-4 w.r.to RO-4	CMD57 O/Ps	0.4 Ω -0.8 Ω	580mΩ	564mΩ
18	PO-4 w.r.to PO-54	CMD57 O/P& mon	33.2kΩ ± 2%	33.171kΩ	33.172kΩ
19	PO-54 w.r.to PO-64	CMD57 mon & GND	2.21kΩ ± 2%	2.210kΩ	2.210kΩ
20	PO-64 w.r.to RO-64	GND	<300mΩ	165mΩ	163mΩ
21	TMR1-1 w.r.to TMR3-1	Contact I/P (P& R)	>10MΩ	41.915MΩ	50.050MΩ
22	TMR3-1 w.r.to TMR1-1	Contact I/P (P& R)	>10MΩ	35.816MΩ	42.925MΩ
23	TMR2-1 w.r.to PO-30	Inst & CMD59 STS mon	1.039kΩ ± 2%	1.040kΩ	1.040kΩ
24	PO-30 w.r.to PO-31	CMD59 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
25	PO-30 w.r.to PO-32	CMD59 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
26	PO-31 w.r.to PO-32	CMD59 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
27	PO-5 w.r.to RO-5	CMD59 O/Ps	0.4 Ω -0.8 Ω	592mΩ	587mΩ
28	PO-5 w.r.to PO-55	CMD59 O/P & mon	33.2kΩ + 2%	33.169kΩ	33.177kΩ
29	PO-55 w.r.to PO-65	CMD59 Mon & GND	2.21kΩ±2%	2.211kΩ	2.211kΩ
30	PO-65 w.r.to RO-65	GND	<300mΩ	165mΩ	163mΩ
31	TMR2-1 w.r.to PO-33	Inst & CMD 62 STS mon	1.039kΩ ± 2%	1.040kΩ	1.040kΩ
32	PO-33 w.r.to PO-34	CMD 62 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
33	PO-33 w.r.to PO-35	CMD 62 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
34	PO-34 w.r.to PO-35	CMD 62 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
35	PO-6 w.r.to RO-6	CMD 62O/Ps	0.5 Ω -0.9 Ω	650mΩ	634mΩ
36	PO-6 w.r.to PO-56	CMD 62 O/P & mon	33.2kΩ + 2%	33.174kΩ	33.176kΩ
37	PO-66 w.r.to RO-66	CMD 62 Mon & GND	<300mΩ	165mΩ	163mΩ
38	PO-56 w.r.to RO-66	GND	2.21kΩ ± 2%	2.210kΩ	2.210kΩ
39	PO-7 w.r.to RO-7	CMD 64O/Ps	0.4 Ω -0.8 Ω	570mΩ	563mΩ
40	PO-7 w.r.to PO-57	CMD 64 O/P & mon	33.2kΩ + 2%	33.153kΩ	33.156kΩ
41	PO-57 w.r.to PO-67	CMD 64 Mon & GND	2.21kΩ ± 2%	2.210kΩ	2.210kΩ
42	PO-67 w.r.to RO-67	GND	<300mΩ	165mΩ	163mΩ
43	TMR2-1 w.r.to PO-36	Inst & CMD 64 STS mon	1.039kΩ ± 2%	1.040kΩ	1.040kΩ
44	PO-36 w.r.to PO-37	CMD 64 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
45	PO-36 w.r.to PO-38	CMD 64 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
46	PO-37 w.r.to PO-38	CMD 64 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
47	PO-8 w.r.to RO-8	CMD 66 O/Ps	0.4 Ω -0.8 Ω	558mΩ	550mΩ
48	PO-8 w.r.to PO-58	CMD 66 O/P & mon	33.2kΩ + 2%	33.175kΩ	33.181kΩ
49	PO-58 w.r.to PO-68	CMD 66 Mon & GND	2.21kΩ±2%	2.210kΩ	2.210kΩ
50	PO-68 w.r.to RO-68	GND	<300mΩ	164mΩ	163mΩ
51	TMR2-1 w.r.to PO-39	Inst & CMD 66 STS mon	1.039kΩ ± 2%	1.040kΩ	1.040kΩ
52	PO-39 w.r.to PO-40	CMD 66 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
53	PO-39 w.r.to PO-41	CMD 66 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
54	PO-40 w.r.to PO-41	CMD 66 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ

55	PO-9 w.r.to RO-9	CMD 93 O/Ps	0.4 Ω -0.8 Ω	597m Ω	592m Ω
56	PO-9 w.r.to PO-59	CMD 93 O/P & mon	33.2k Ω + 2%	33.166k Ω	33.171k Ω
57	PO-59 w.r.to RO-69	CMD 93 Mon & GND	2.21k Ω ±2%	2.210k Ω	2.210k Ω
58	PO-69 w.r.to RO-69	GND	<300m Ω	164m Ω	163m Ω
59	TMR2-1 w.r.to RO-24	Inst & CMD 93 STS mon	1.039k Ω ± 2%	1.040k Ω	1.040k Ω
60	RO-24 w.r.to RO-25	CMD 93 STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
61	RO-24 w.r.to RO-26	CMD 93 STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
62	RO-25 w.r.to RO-26	CMD 93 STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
63	TMR2-1 w.r.to RO-27	CMD 94 O/Ps	1.039k Ω ± 2%	1.040k Ω	1.040k Ω
64	RO-27 w.r.to RO-28	CMD 94 O/P & mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
65	RO-27 w.r.to RO-29	CMD 94 Mon & GND	2 k Ω ± 2%	2.000k Ω	2.000k Ω
66	RO-28 w.r.to RO-29	GND	2 k Ω ± 2%	2.000k Ω	2.000k Ω
67	PO-10 w.r.to RO-10	Inst & CMD 94 STS mon	0.4 Ω -0.8 Ω	548m Ω	539m Ω
68	PO-10 w.r.to RO-51	CMD 94STS mon	33.2k Ω + 2%	33.172k Ω	33.179k Ω
69	RO-51 w.r.to PO-70	CMD 94 STS mon	2.21k Ω ±2%	2.211k Ω	2.211k Ω
70	PO-70 w.r.to RO-70	CMD 94 STS mon	<300m Ω	169m Ω	168m Ω
71	PO-12 w.r.to RO-12	CMD96 O/Ps	0.3 Ω -0.7 Ω	404m Ω	401m Ω
72	PO-12 w.r.to RO-53	CMD96 O/P & mon	33.2k Ω + 2%	33.167k Ω	33.174k Ω
73	RO-53 w.r.to RO-72	CMD96 Mon & GND	2.21k Ω ±2%	2.211k Ω	2.211k Ω
74	PO-72 w.r.to RO-72	GND	<300m Ω	170m Ω	168m Ω
75	TMR2-1 w.r.to RO-30	Inst & CMD96 STS mon	1.039k Ω ± 2%	1.040k Ω	1.040k Ω
76	RO-30 w.r.to RO-31	CMD96 STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
77	RO-30 w.r.to RO-32	CMD96 STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
78	RO-31 w.r.to RO-32	CMD96 STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
79	TMR2-1 w.r.to RO-33	Inst & CMD 47 STS mon	1.039k Ω ± 2%	1.040k Ω	1.040k Ω
80	RO-33 w.r.to RO-34	CMD 47 STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
81	RO-33 w.r.to RO-35	CMD 47 STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
82	RO-34 w.r.to RO-35	CMD 47 STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
83	PO-13 w.r.to RO-13	CMD 47 O/Ps	0.1 Ω -0.4 Ω	221m Ω	218m Ω
84	RO-13 w.r.to RO-54	CMD 47 O/P & mon	33.2k Ω + 2%	33.185k Ω	33.189k Ω
85	RO-54 w.r.to RO-73	CMD 47 Mon & GND	2.21k Ω ±2%	2.211k Ω	2.211k Ω
86	PO-73 w.r.to RO-73	GND	<300m Ω	165m Ω	163m Ω
87	TMR2-1 w.r.to RO-36	Inst & CMD47A STS mon	1.039k Ω ± 2%	1.040k Ω	1.040k Ω
88	RO-36 w.r.to RO-37	CMD 47A STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
89	RO-36 w.r.to RO-38	CMD 47A STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
90	RO-37 w.r.to RO-38	CMD 47A STS mon	2 k Ω ± 2%	2.000k Ω	2.000k Ω
91	PO-15 w.r.to RO-15	CMD 47A O/Ps	0.3 Ω -0.7 Ω	472m Ω	466m Ω
92	PO-15 w.r.to RO-56	CMD 47A O/P & mon	33.2k Ω ± 2%	33.169k Ω	33.174k Ω
93	RO-56 w.r.to RO-75	CMD 47A Mon & GND	2.21k Ω ± 2%	2.212k Ω	2.212k Ω
94	PO-75 w.r.to RO-75	GND	<300m Ω	164m Ω	163m Ω
95	PO-16 w.r.to RO-16	CMD 52 O/Ps	<100m Ω	83m Ω	79m Ω
96	PO-16 w.r.to RO-57	CMD 52 O/P & mon	17.61k Ω ± 2%	17.633k Ω	17.634k Ω

97	RO-57 w.r.to RO-76	CMD 52 Mon & GND	2.15kΩ ± 2%	2.142kΩ	2.142kΩ
98	RO-76 w.r.to PO-76	GND	<300mΩ	165mΩ	163mΩ
99	PO-2 w.r.to RO-2	CMD 52 O/Ps	<100mΩ	97mΩ	83mΩ
100	PO-62 w.r.to RO-62	GND	<300mΩ	178mΩ	176mΩ
101	RO-2 w.r.to RO-52	CMD 52 O/P & mon	17.61kΩ ± 2%	17.634kΩ	17.633kΩ
102	RO-52 w.r.to RO-62	CMD 52 Mon & GND	2.15kΩ ± 2%	2.141kΩ	2.141kΩ
103	PO-16 w.r.to PO-2	CMD 52 O/Ps	0.2Ω ± 200mΩ	307mΩ	295mΩ
104	TMR2-1 w.r.to RO-39	Inst & CMD 52 STS mon	1.039kΩ ± 2%	1.040kΩ	1.040kΩ
105	RO-39 w.r.to RO-40	CMD 52 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
106	RO-39 w.r.to RO-41	CMD 52 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
107	RO-40 w.r.to RO-41	CMD 52 STS mon	2 kΩ ± 2%	2.000kΩ	2.000kΩ
108	PO-22 w.r.to RO-22	Spare1 dry BAT I/P	0.4 Ω - 1Ω	834mΩ	812mΩ
109	PO-17 w.r.to RO-17	Spare1 dry O/Ps	0.4 Ω - 1Ω	751mΩ	744mΩ
110	PO-45 w.r.to RO-45	Spare2 dry BAT I/P	0.4 Ω - 1Ω	683mΩ	677mΩ
111	PO-18 w.r.to RO-18	Spare2 dry O/Ps	0.4 Ω - 1Ω	527mΩ	521mΩ
112	PO-46 w.r.to RO-46	Spare3 dry BAT I/P	0.4 Ω - 1Ω	798mΩ	792mΩ
113	PO-19 w.r.to RO-19	Spare3 dry O/Ps	0.4 Ω - 1Ω	886mΩ	877mΩ
114	PO-77 w.r.to RO-77	Spare4 dry BAT I/P	0.4 Ω - 1Ω	701mΩ	695mΩ
115	PO-20 w.r.to RO-20	Spare4 dry O/Ps	0.4 Ω - 1Ω	853mΩ	843mΩ
116	PO-47 w.r.to RO-47	Spare5 dry BAT I/P	0.8Ω -1.2Ω	936mΩ	929mΩ
117	PO-21 w.r.to RO-21	Spare5 dry O/Ps	0.8Ω -1.2Ω	904mΩ	894mΩ
118	PO-42 w.r.to PO-43	GND	<100mΩ	32mΩ	30mΩ
119	PO-42 w.r.to PO-44	GND	<100mΩ	34mΩ	33mΩ
120	PO-42 w.r.to RO-42	GND	<300mΩ	174mΩ	172mΩ
121	PO-42 w.r.to RO-43	GND	<300mΩ	172mΩ	170mΩ
122	PO-42 w.r.to RO-44	GND	<300mΩ	169mΩ	167mΩ
123	TMR1-3 w.r.to TMR1-4	SPS1 (H)	<100mΩ	35mΩ	34mΩ
124	TMR2-3 w.r.to TMR2-4	SPS2 (H)	<100mΩ	32mΩ	31mΩ
125	TMR3-3 w.r.to TMR3-4	SPS3 (H)	<100mΩ	31mΩ	31mΩ
126	TMR2-43 w.r.to TMR2-44	GND	<100mΩ	32mΩ	32mΩ
127	TMR2-43 w.r.to TMR1-43		0.2Ω -0.5Ω	224mΩ	222mΩ
128	TMR2-43 w.r.to TMR1-44		0.2Ω -0.5Ω	223mΩ	221mΩ
129	TMR2-43 w.r.to PO-42		0.2Ω -0.5Ω	376mΩ	373mΩ
130	TMR2-43 w.r.to PO-61		0.2Ω -0.5Ω	379mΩ	376mΩ
131	TMR2-43 w.r.to PO-62		0.2Ω -0.5Ω	379mΩ	376mΩ
132	TMR2-43 w.r.to PO-64		0.2Ω -0.5Ω	368mΩ	365mΩ
133	TMR2-43 w.r.to PO-65		0.2Ω -0.5Ω	366mΩ	363mΩ
134	TMR2-43 w.r.to PO-66		0.2Ω -0.5Ω	364mΩ	361mΩ
135	TMR2-43 w.r.to PO-67		0.2Ω -0.5Ω	361mΩ	358mΩ
136	TMR2-43 w.r.to PO-68		0.2Ω -0.5Ω	359mΩ	356mΩ
137	TMR2-43 w.r.to PO-69		0.2Ω -0.5Ω	357mΩ	354mΩ
138	TMR2-43 w.r.to PO-70		0.2Ω -0.5Ω	359mΩ	356mΩ
139	TMR2-43 w.r.to PO-72		0.2Ω -0.5Ω	344mΩ	341mΩ
140	TMR2-43 w.r.to PO-73		0.2Ω -0.5Ω	342mΩ	339mΩ
141	TMR2-43 w.r.to PO-75		0.2Ω -0.5Ω	334mΩ	331mΩ
142	TMR2-43 w.r.to PO-76	0.2Ω -0.5Ω	331mΩ	329mΩ	
143	All pins w.r.t chassis		>100MΩ	>100MΩ	>100MΩ
144	All connector mounting post w.r.t chassis		<100mΩ	<100mΩ	<100mΩ