

	37,40,42,43,45			
107	CIP-35 wrt CIP-37, 40,42,43,45		>100MΩ	>100MΩ
108	CIP-37 wrt CIP- 40,42, 43,45		>100MΩ	>100MΩ
109	CIP-40 wrt CIP- 42, 43, 45		>100MΩ	>100MΩ
110	CIP-42 wrt CIP- 43, 45		>100MΩ	>100MΩ
111	CIP-43 wrt CIP- 45		>100MΩ	>100MΩ
112	All pins with respect to chassis		>100MΩ	>100MΩ

BAT - RTN CARD

Checklist of CEM BS RTN_BAT RTN

S1 NO	PIN DETAILS	DESCRIPTION	EXPECTED	OBSERVATION	
				ISRC	FSRC
1	PB_R-A wrt B	BAT (-)/SQB_P	<100mΩ	11mΩ	12mΩ
2	PB_R-A wrt C	BAT (-)/SQB_P	<100mΩ	3mΩ	8mΩ
3	PB_R-A wrt D	BAT (-)/SQB_P	<100mΩ	15mΩ	17mΩ
4	PB_R-A wrt E	BAT (-)/SQB_P	<100mΩ	7mΩ	16mΩ
5	PB_R-A wrt F	BAT (-)/SQB_P	<100mΩ	14mΩ	11mΩ
6	PB_R-A wrt G	BAT (-)/SQB_P	<100mΩ	9mΩ	11mΩ
7	PB_R-A wrt H	BAT (-)/SQB_P	<100mΩ	4mΩ	5mΩ
8	PB_R-A wrt J	BAT (-)/SQB_P	<100mΩ	10mΩ	10mΩ
9	RB_R-A wrt B	BAT (-)/SQB_R	<100mΩ	5mΩ	4mΩ
10	RB_R-A wrt C	BAT (-)/SQB_R	<100mΩ	14mΩ	7mΩ
11	RB_R-A wrt D	BAT (-)/SQB_R	<100mΩ	30mΩ	24mΩ
12	RB_R-A wrt E	BAT (-)/SQB_R	<100mΩ	26mΩ	5mΩ
13	RB_R-A wrt F	BAT (-)/SQB_R	<100mΩ	11mΩ	5mΩ
14	RB_R-A wrt G	BAT (-)/SQB_R	<100mΩ	8mΩ	5mΩ
15	RB_R-A wrt H	BAT (-)/SQB_R	<100mΩ	15mΩ	13mΩ
16	RB_R-A wrt J	BAT (-)/SQB_R	<100mΩ	15mΩ	9mΩ
17	PB_R-A wrt CHASSIS	BAT (-)/SQB_P wrt CHASSIS	1 kΩ± 2 %	1.000kΩ	1.000kΩ
18	RB_R-A wrt CHASSIS	BAT (-)/SQB_R wrt CHASSIS	1 kΩ± 2 %	1.000kΩ	1.000kΩ
19	PB_R-K wrt RB_R-K	IP CON.MAT_P wrt IP CON.MAT_R	<100mΩ	14mΩ	13mΩ
20	MONOP-3 wrt 7	BAT ALL OFF	<100mΩ	83mΩ	63mΩ

21	MON_OP 17 wrt 18	BAT (-) ST. MON/SQB	2 kΩ± 2 %	2.000kΩ	2.000kΩ
22	MON_OP 18 wrt 19	BAT (-) ST. MON/SQB	2 kΩ± 2 %	2.000kΩ	2.000kΩ
23	MON_OP 21 wrt 22	BAT (-) ST. MON/VLV	2 kΩ± 2 %	2.000kΩ	2.000kΩ
24	MON_OP 22 wrt 23	BAT (-) ST. MON/VLV	2 kΩ± 2 %	2.000kΩ	2.000kΩ
25	MON_OP-44 wrt MON_OP-17	INST.LIVE_MON wrt BAT(-) ST. MON/SQB	1.47 kΩ±2 %	1.475kΩ	1.475kΩ
26	MON_OP 44 wrt MON_OP 21	INST.LIVE_MON wrt BAT(-) ST. MON/VLV	1.47 kΩ±2 %	1.475kΩ	1.475kΩ
27	MON_OP-44 wrt MON_OP 45	INST.LIVE_MON	<100mΩ	73mΩ	53mΩ
28	MON_OP 46 wrt MON_OP 47	28V_BAT/SQB_P wrt 28V_BAT/SQB_R	2 kΩ±2 %	2.003kΩ	2.003kΩ
29	MON_OP 46 wrt MON_OP 66	28V_BAT/SQB_P wrt 28V_BAT_MON/SQB_P	<100mΩ	72mΩ	55mΩ
30	MON_OP 47 wrt MON_OP 67	28V_BAT/SQB_R & 28V_BAT_MON/SQB_R	<100mΩ	72mΩ	56mΩ
31	MON_OP 48 wrt MON_OP 49	28V_BAT/VLV_P wrt 28V_BAT/VLV_R	2 kΩ±2 %	2.003kΩ	2.003kΩ
32	MON_OP 48 wrt MON_OP 68	28V_BAT/VLV_P wrt 28V_BAT_MON/VLV_P	<100mΩ	75mΩ	58mΩ
33	MON_OP 49 wrt MON_OP 69	28V_BAT/VLV_R wrt 28V_BAT_MON/VLV_R	<100mΩ	71mΩ	54mΩ
34	MON_OP-61 wrt 62	+/-15V RTN	<100mΩ	73mΩ	57mΩ
35	MON_OP-64 wrt 65	INST RTN	<100mΩ	73mΩ	58mΩ
36	MON_OP 74 wrt chassis	CHASSIS	<150mΩ	141mΩ	129mΩ
37	OP1-1 wrt 2	BAT_RTN/SQB (sensor-1)	<100mΩ	78mΩ	56mΩ
38	OP1-1 wrt 3		<150mΩ	136mΩ	118mΩ
39	OP1-1 wrt 4		<150mΩ	137mΩ	118mΩ
40	OP1-1 wrt 5		<150mΩ	134mΩ	117mΩ
41	OP1-1 wrt 6		<150mΩ	135mΩ	120mΩ
42	OP1-1 wrt 7		<150mΩ	135mΩ	116mΩ
43	OP1-1 wrt 8		<150mΩ	136mΩ	119mΩ
44	OP1-1 wrt 21		<150mΩ	143mΩ	122mΩ
45	OP1-1 wrt 22		<150mΩ	141mΩ	124mΩ
46	OP1-1 wrt 23		<150mΩ	139mΩ	120mΩ
47	OP1-1 wrt 24		<150mΩ	138mΩ	121mΩ
48	OP1-1 wrt 25		<150mΩ	137mΩ	121mΩ

49	OP1-1 wrt 26		<150mΩ	137mΩ	118mΩ
50	OP1-1 wrt 27		<150mΩ	136mΩ	118mΩ
51	OP1-1 wrt 28		<150mΩ	135mΩ	118mΩ
52	OP1-1 wrt 40		<150mΩ	139mΩ	121mΩ
53	OP1-1 wrt 41		<150mΩ	140mΩ	125mΩ
54	OP1-1 wrt 42		<150mΩ	143mΩ	123mΩ
55	OP1-1 wrt 43		<150mΩ	143mΩ	126mΩ
56	OP1-1 wrt 44		<150mΩ	145mΩ	126mΩ
57	OP1-1 wrt 45		<150mΩ	144mΩ	127mΩ
58	OP1-1 wrt 46		<150mΩ	147mΩ	132mΩ
59	OP1-1 wrt 47		<150mΩ	150mΩ	130mΩ
60	OP1-1 wrt 60		<150mΩ	143mΩ	125mΩ
61	OP1-1 wrt 61		<150mΩ	143mΩ	123mΩ
62	OP1-1 wrt 62		<150mΩ	143mΩ	124mΩ
63	OP1-1 wrt 63		<150mΩ	142mΩ	125mΩ
64	OP1-10 wrt OP1-30	BAT_RTN/VLV	<100mΩ	72mΩ	55mΩ
65	OP1-12 wrt 13		<150mΩ	75mΩ	58mΩ
66	OP1-12 wrt 14		<150mΩ	74mΩ	55mΩ
67	OP1-12 wrt 15		<150mΩ	75mΩ	58mΩ
68	OP1-12 wrt 16		<150mΩ	76mΩ	59mΩ
69	OP1-12 wrt 17		<150mΩ	78mΩ	58mΩ
70	OP1-12 wrt 18		<150mΩ	74mΩ	59mΩ
71	OP1-12 wrt 19		<150mΩ	76mΩ	60mΩ
72	OP1-12 wrt 20		<150mΩ	77mΩ	56mΩ
73	OP1-12 wrt 32	BAT_RTN/SQB (sensor-2)	<150mΩ	74mΩ	55mΩ
74	OP1-12 wrt 33		<150mΩ	73mΩ	56mΩ
75	OP1-12 wrt 34		<150mΩ	73mΩ	56mΩ
76	OP1-12 wrt 35		<150mΩ	72mΩ	55mΩ

77	OP1-12 wrt 36		<150mΩ	75mΩ	59mΩ
78	OP1-12 wrt 37		<150mΩ	76mΩ	57mΩ
79	OP1-12 wrt 38		<150mΩ	73mΩ	57mΩ
80	OP1-12 wrt 39		<150mΩ	74mΩ	58mΩ
81	OP1-12 wrt 51		<150mΩ	73mΩ	59mΩ
82	OP1-12 wrt 52		<150mΩ	79mΩ	57mΩ
83	OP1-12 wrt 53		<150mΩ	72mΩ	56mΩ
84	OP1-12 wrt 54		<150mΩ	72mΩ	57mΩ
85	OP1-12 wrt 55		<150mΩ	74mΩ	55mΩ
86	OP1-12 wrt 56		<150mΩ	76mΩ	57mΩ
87	OP1-12 wrt 57		<150mΩ	73mΩ	60mΩ
88	OP1-12 wrt 58		<150mΩ	71mΩ	57mΩ
89	OP1-12 wrt 59		<150mΩ	70mΩ	56mΩ
90	OP2-1 wrt 2		<100mΩ	62mΩ	60mΩ
91	OP2-1 wrt 3		<100mΩ	61mΩ	61mΩ
92	OP2-1 wrt 4		<100mΩ	81mΩ	74mΩ
93	OP2-1 wrt 5		<100mΩ	61mΩ	60mΩ
94	OP2-1 wrt 6		<100mΩ	60mΩ	56mΩ
95	OP2-1 wrt 7		<100mΩ	62mΩ	59mΩ
96	OP2-1 wrt 8		<100mΩ	68mΩ	68mΩ
97	OP2-1 wrt 21		<100mΩ	60mΩ	55mΩ
98	OP2-1 wrt 22		<100mΩ	62mΩ	60mΩ
99	OP2-1 wrt 23		<100mΩ	64mΩ	67mΩ
100	OP2-1 wrt 24		<100mΩ	61mΩ	56mΩ
101	OP2-1 wrt 25		<100mΩ	63mΩ	61mΩ
102	OP2-1 wrt 26		<100mΩ	60mΩ	56mΩ
103	OP2-1 wrt 27		<100mΩ	62mΩ	58mΩ
104	OP2-1 wrt 28		<100mΩ	64mΩ	64mΩ

105	OP2-1 wrt 40		<150mΩ	63mΩ	60mΩ
106	OP2-1 wrt 41		<150mΩ	60mΩ	54mΩ
107	OP2-1 wrt 42		<150mΩ	63mΩ	62mΩ
108	OP2-1 wrt 43		<150mΩ	64mΩ	65mΩ
109	OP2-1 wrt 44		<150mΩ	60mΩ	52mΩ
110	OP2-1 wrt 45		<150mΩ	62mΩ	61mΩ
111	OP2-1 wrt 46		<150mΩ	63mΩ	61mΩ
112	OP2-1 wrt 47		<150mΩ	61mΩ	54mΩ
113	OP2-1 wrt 60		<150mΩ	62mΩ	59mΩ
114	OP2-1 wrt 61		<150mΩ	62mΩ	56mΩ
115	OP2-1 wrt 62		<150mΩ	59mΩ	57mΩ
116	OP2-1 wrt 63		<150mΩ	65mΩ	65mΩ
117	OP2-1 wrt 64		<150mΩ	68mΩ	61mΩ
118	OP2-1 wrt 65		<150mΩ	62mΩ	58mΩ
119	OP2-1 wrt 66		<150mΩ	63mΩ	60mΩ
120	OP2-1 wrt 67		<150mΩ	60mΩ	57mΩ
121	OP2-10 wrt OP2-30	BAT_RTN/VLV	<100mΩ	60mΩ	58mΩ
122	OP2-12 wrt 13		<100mΩ	79mΩ	73mΩ
123	OP2-12 wrt 14		<100mΩ	63mΩ	60mΩ
124	OP2-12 wrt 15		<100mΩ	61mΩ	57mΩ
125	OP2-12 wrt 16		<100mΩ	58mΩ	57mΩ
126	OP2-12 wrt 17		<100mΩ	63mΩ	62mΩ
127	OP2-12 wrt 18		<100mΩ	59mΩ	55mΩ
128	OP2-12 wrt 19		<100mΩ	62mΩ	56mΩ
129	OP2-12 wrt 20	BAT_RTN/SQB (sensor-4)	<100mΩ	62mΩ	60mΩ
130	OP2-12 wrt 32		<150mΩ	59mΩ	57mΩ
131	OP2-12 wrt 33		<150mΩ	64mΩ	66mΩ
132	OP2-12 wrt 34		<150mΩ	57mΩ	50mΩ

133	OP2-12 wrt 35		<150mΩ	62mΩ	60mΩ
134	OP2-12 wrt 36		<150mΩ	60mΩ	57mΩ
135	OP2-12 wrt 37		<150mΩ	64mΩ	64mΩ
136	OP2-12 wrt 38		<150mΩ	62mΩ	62mΩ
137	OP2-12 wrt 39		<150mΩ	72mΩ	68mΩ
138	OP2-12 wrt 51		<150mΩ	60mΩ	58mΩ
139	OP2-12 wrt 52		<150mΩ	63mΩ	62mΩ
140	OP2-12 wrt 53		<150mΩ	59mΩ	54mΩ
141	OP2-12 wrt 54		<150mΩ	60mΩ	55mΩ
142	OP2-12 wrt 55		<150mΩ	62mΩ	59mΩ
143	OP2-12 wrt 56		<150mΩ	61mΩ	56mΩ
144	OP2-12 wrt 57		<150mΩ	59mΩ	59mΩ
145	OP2-12 wrt 58		<150mΩ	65mΩ	66mΩ
146	OP2-12 wrt 59		<150mΩ	66mΩ	62mΩ
147	OP1-49 wrt 50	BAT_RTN/VLV	<150mΩ	66mΩ	53mΩ
148	OP1-49 wrt 69		<150mΩ	65mΩ	50mΩ
149	OP1-49 wrt 70		<150mΩ	58mΩ	49mΩ
150	OP1-49 wrt 71		<150mΩ	89mΩ	87mΩ
151	OP1-49 wrt 72		<150mΩ	103mΩ	86mΩ
152	OP1-49 wrt 73		<150mΩ	88mΩ	80mΩ
153	OP1-49 wrt 74		<150mΩ	89mΩ	81mΩ
154	OP1-49 wrt 75		<150mΩ	79mΩ	72mΩ
155	OP1-49 wrt 76		<150mΩ	89mΩ	85mΩ
156	OP1-49 wrt 77		<150mΩ	87mΩ	75mΩ
157	OP1-49 wrt 78		<150mΩ	85mΩ	79mΩ
158	OP1-49 wrt OP2-49		<150mΩ	67mΩ	62mΩ
159	OP1-49 wrt OP2-50		<150mΩ	67mΩ	59mΩ
160	OP1-49 wrt OP2-69		<150mΩ	72mΩ	59mΩ

161	OP1-49 wrt OP2-70		<150mΩ	68mΩ	61mΩ
162	OP1-49 wrt OP2-71		<150mΩ	79mΩ	70mΩ
163	OP1-49 wrt OP2-72		<150mΩ	78mΩ	72mΩ
164	OP1-49 wrt OP2-73		<150mΩ	79mΩ	72mΩ
165	OP1-49 wrt OP2-74		<150mΩ	91mΩ	73mΩ
166	OP1-49 wrt OP2-75		<150mΩ	78mΩ	71mΩ
167	OP1-49 wrt OP2-76		<150mΩ	78mΩ	67mΩ
168	OP1-49 wrt OP2-77		<150mΩ	76mΩ	68mΩ
169	OP1-49 wrt OP2-78		<150mΩ	78mΩ	76mΩ
70	OP1-1 wrt 12	SQB_RTN-P S1 & S2	<150mΩ	131mΩ	112mΩ
171	OP1-1 wrt OP2-1	SQB_RTN-P S1 & R-S1	<150mΩ	128mΩ	116mΩ
172	OP1-1 wrt OP2-12	SQB_RTN-P S1 & R-S2	<150mΩ	113mΩ	104mΩ
173	MON_OP-40 wrt 41	SUPPLY +15V LEM	<100mΩ	83mΩ	58mΩ
174	MON_OP-42 wrt 43	SUPPLY -15V LEM	<100mΩ	68mΩ	55mΩ
175	MON_OP-52 wrt 53	LEM_OP/HF	2 kΩ±2 %	2.000kΩ	2.000k Ω
176	MON_OP-56 wrt 58	LEM_OP/LF	2 kΩ±2 %	2.000kΩ	2.001k Ω
177	MON_OP-55 wrt 70	LEM_OP/HF	2 kΩ±2 %	2.001kΩ	2.001k Ω
178	MON_OP-60 wrt 59	LEM_OP/LF	2 kΩ±2 %	2.001kΩ	2.001k Ω
179	MON_OP-4 wrt 66	Sqb bat coil wrt TM mon	>100MΩ	>100MΩ	>100MΩ
180	MON_OP-8 wrt 68	VLV bat coil wrt TM mon	>100MΩ	>100MΩ	>100MΩ
181	MON_OP-44 wrt 4	Inst Live wrt SQB Bat coil rtn	>100MΩ	>100MΩ	>100MΩ
182	MON_OP-44 wrt 8	Inst Live wrt VLV-Bat coil rtn	>100MΩ	>100MΩ	>100MΩ
183	MON_OP-44 wrt OP1-1	Inst Live wrtSqbrtn	>100MΩ	>100MΩ	>100MΩ
184	MON_OP-3 wrt 44	Bat All OFF wrtInst	>100MΩ	>100MΩ	>100MΩ
185	MON_OP-3 wrt OP1-1	Bat All OFF wrtSqbrtn	>100MΩ	>100MΩ	>100MΩ
186	MON_OP-4 wrt 61	Sqb bat coil wrt ±15V Rtn	>100MΩ	>100MΩ	>100MΩ
187	MON_OP-8 wrt 61	VLV bat coil wrt ±15V Rtn	>100MΩ	>100MΩ	>100MΩ
188	MON_OP-3 wrt 61	Bat All OFF wrt ±15V Rtn	>100MΩ	>100MΩ	>100MΩ
189	MON_OP-44 wrt 61	Inst Live wrt ±15V Rtn	>100MΩ	>100MΩ	>100MΩ
190	MON_OP-1 wrt 4	BAT SQB ON COIL	#90 ± 9Ω	88.964Ω	89.274Ω
191	MON_OP-2 wrt 4	BAT SQB OFF COIL		89.215Ω	89.509Ω

192	MON_OP-5 wrt 8	BAT VLV ON COIL	#225± 22 Ω	222.371Ω	223.225Ω
193	MON_OP-6 wrt 8	BAT VLV OFF COIL		222.731Ω	223.620Ω
194	MON_OP-32 wrt OP1-1	SQB bat rtn-P wrtSqbrtn	<150mΩ	145mΩ	131mΩ
195	MON_OP-33 wrt OP2-1	SQB bat rtn-R wrtSqbrtn	<150mΩ	110mΩ	103mΩ
196	MON_OP-35 wrt OP1-49	VLV bat rtn-P wrt VLV rtn	<150mΩ	131mΩ	119mΩ
197	MON_OP-36 wrt OP1-49	VLV bat rtn-R wrt VLV rtn	<150mΩ	127mΩ	115mΩ
198	MON_OP-66 wrt 32	SQB bat mon-P wrt bat rtn-P	1 kΩ± 2 %	1.002kΩ	1.002kΩ
199	MON_OP-67 wrt 33	SQB bat mon-R wrt bat rtn-R	1 kΩ± 2 %	1.002kΩ	1.002kΩ
200	MON_OP-68 wrt 35	VLV bat mon-P wrt bat rtn-P	1 kΩ± 2 %	1.000kΩ	1.001kΩ
201	MON_OP-69 wrt 36	VLV bat mon-R wrt bat rtn-R	1 kΩ± 2 %	1.002kΩ	1.002kΩ
202	OP1-1 wrt OP1-49	SQB_RTN wrt VLV-RTN	2 kΩ± 2 %	2.000kΩ	2.000kΩ
All pins with respect to chassis except: PB-R-A to J, RB-R-A to J,OP1- 1- 8,10,12-28, 30,32-47, 49-63, 69-78,OP2- 1- 8,10,12-28, 30,32-47, 49-67, 69-78 & MON OP- 46, 47,48,49,66,67,68,69,74			>100MΩ	>100MΩ	>100MΩ

#If M402 (Leach) or 327B (STPI)relays

Continuity measurement for BAT-RTN with Battery relays ON/OFF condition

Issue Battery ON (SQB) command (28V pulse @ MONOP-1 wrt MONOP-4).

SL NO	PIN DETAILS	EXPECTED	OBSERVATION	
			ISRC	FSRC
1	PB-R-A wrt OP1-1	<100mΩ	80mΩ	83 mΩ
2	PB-R-A wrt OP1-12	<100mΩ	53mΩ	50 mΩ
3	RB-R-A wrt OP2-1	<100mΩ	49mΩ	48 mΩ
4	RB-R-A wrt OP2-12	<100mΩ	38mΩ	36 mΩ
5	OP1-1 wrt MON-OP-74	500Ω±2 %	500.281Ω	500.277Ω
6	OP2-1 wrt MON-OP-74	500Ω±2 %	500.252Ω	500.252Ω

List of Connectors in the package

1. PB-R and RB-R=11 pin male DM3899 connector
2. Mon-OP,OP1 and OP2= 78 pin female