INSTALLATION INSTRUCTIONS
&
REPLACEMENT PARTS LIST

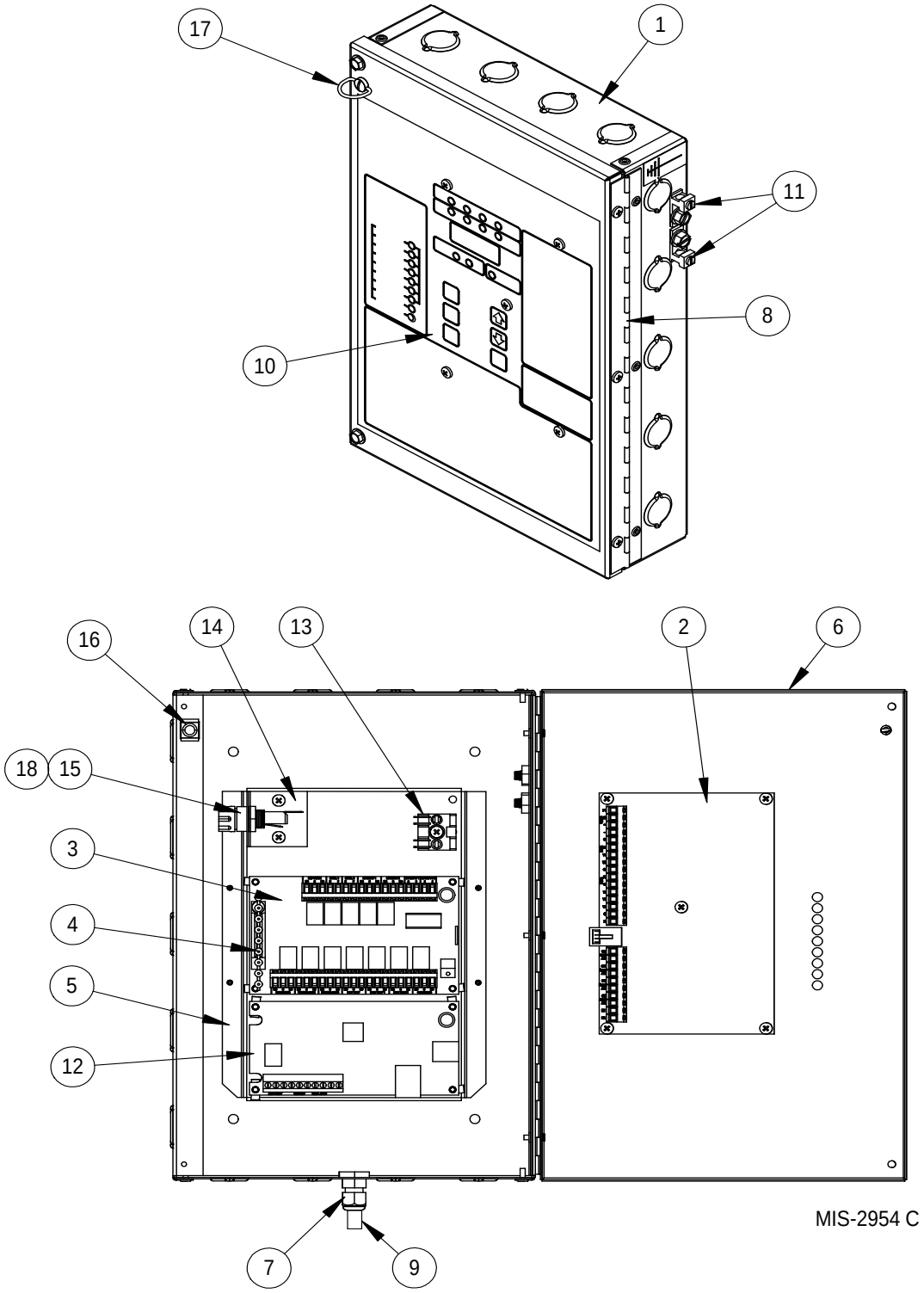
MC4002 SERIES SOLID STATE
DUAL UNIT LEAD/LAG CONTROLLER

Bard®
SINCE 1914
Climate Control Solutions

Bard Manufacturing Company, Inc.
Bryan, Ohio 43506
www.bardhvac.com

Manual : 2100-614J
Supersedes: 2100-614I
Date: 9-9-20

FIGURE 21
PARTS LIST DESCRIPTION DIAGRAM



Parts List

Dwg. No.	Part No.	Description	MC4002	MC4002-A	MC4002-AC	MC4002-B	MC4002-BC	AB3000-A	AB3000-B	CB5000
1	127-343-4	Control Box	X	X	X	X	X			
2	8612-043	Controller Board	X	X	X	X	X			
3	8612-049	Alarm Board A*		X	X			X		
3	8612-050	Alarm Board B*				X	X		X	
4	8612-022	Alarm Display		X	X	X	X	X	X	
5	113-430-4	Support Bracket	X	X	X	X	X			
6	152-625-4	Control Box Door	X	X	X	X	X			
7	8611-099	LTF Fitting	X	X	X	X	X			
8	5400-002	Hinge	X	X	X	X	X			
9	8612-023A	Sensor	X	X	X	X	X			
10	7961-731	Label/Keypad	X	X	X	X	X			
11	8611-006	Ground Lug	2	2	2	2	2			
12	8612-047	Communication Board			X		X			X
13	8607-030	Terminal Block	X	X	X	X	X			
14	113-588	Fuse Bracket	X	X	X	X	X			
15	8614-056	Fuse Holder	X	X	X	X	X			
16	1171-023	1/4 Turn Receptacle	X	X	X	X	X			
17	1171-022	1/4 Turn Fastener	X	X	X	X	X			
18	8614-057	Fuse	X	X	X	X	X			
NS	8612-039	Communication Cable			X		X			X
NS	8612-051	Alarm Board Cable		X	X	X	X	X	X	

* 8612-051 alarm board cable included with these alarm boards

NS – Not Shown

TABLE 1
Temperature Sensor Table

Value measured at sensor connections to the main controller board with controller powered up

F	Kelvin	VDC
60	288.7056	2.887
61	289.2611	2.893
62	289.8167	2.898
63	290.3722	2.904
64	290.9277	2.909
65	291.4832	2.915
66	292.0387	2.920
67	292.5942	2.926
68	293.1497	2.931
69	293.7052	2.937
70	294.2607	2.943
71	294.8162	2.948
72	295.3717	2.954
73	295.9272	2.959
74	296.4827	2.965
75	297.0382	2.970
76	297.5937	2.976
77	298.1492	2.981
78	298.7047	2.987
79	299.2602	2.993
80	299.8157	2.998
81	300.3712	3.004
82	300.9267	3.009

F	Kelvin	VDC
83	301.4822	3.015
84	302.0377	3.020
85	302.5932	3.026
86	303.1487	3.031
87	303.7042	3.037
88	304.2597	3.043
89	304.8152	3.048
90	305.3707	3.054
91	305.9262	3.059
92	306.4817	3.065
93	307.0372	3.070
94	307.5927	3.076
95	308.1482	3.081
96	308.7037	3.087
97	309.2592	3.093
98	309.8147	3.098
99	310.3702	3.104
100	310.9257	3.109
101	311.4812	3.115
102	312.0367	3.120
103	312.5922	3.126
104	313.1477	3.131
105	313.7032	3.137

NOTES

1. If sensor is connected in reverse (copper wire to AG terminal and silver wire to CU terminal), the voltage across the two terminals will measure approximately .7vDC. Controller must be "On".
2. If sensor connected with reverse polarity, the display should read 00.
3. Cannot check sensor by disconnecting leads and measuring ohms, but ohmmeter can be used to check for bad sensor (infinity would = open and continuity = shorted).
4. If sensor is open or lead broken/disconnected, the display will show the setpoint.
5. If sensor appears to be OK, try reconnecting to either R1 or R2 input terminals. If controller now works OK, something wrong with "Loc" input circuit. OK to leave this way.
6. If more than one sensor is connected and one fails, the controller will operate OK from the functional sensor.
7. If only one sensor and it fails or is disconnected, 1st stage cooling will default "On" if it was calling for cooling when sensor went out. If additional stages were on at the time, they will turn off.