



C7835A1009 Discharge Air Temperature Sensor

INSTALLATION INSTRUCTIONS

APPLICATION

The C7835A1009 Discharge Air Temperature Sensor (DATS) is a duct-mounted temperature probe that provides capacity control of heating and cooling equipment. It is used only with Resideo networked zoning. Mounted in the supply air duct, the DATS senses the delivered air temperature and cuts off the heating or cooling when the delivered air temperature goes above or below normal operating limits. The heating and cooling limits are field-adjustable. The DATS also compares the discharge air temperature to the room temperature and, if out of tolerance, a heating or cooling alert is issued. In normal operation, the heat and cool lights are off, and the COM light blinks periodically with activity on the Envracom bus.

When either limit setting is reached, the heating or cooling shuts off, and the LEDs operate according to Table 1. The call still exists and heated or cooled air is still being supplied to the calling zones. Once the delivered air temperature drops ten degrees for heating, or rises ten degrees for cooling, the heating or cooling equipment is brought back on. The ten degree differential provides adequate minimum time-off to avoid damaging the equipment.

NOTE: When using 50 Hz power, cut Jumper W1.

The location of the DATS is critical; it should not be placed in line-of-sight of the heat exchanger or cooling coil because the DATS could activate prematurely. It should also be located before the bypass damper, when applicable. See Fig. 1 for dimensions.

The DATS requires only three wires. Normal 18-22 gauge thermostat wire is used.

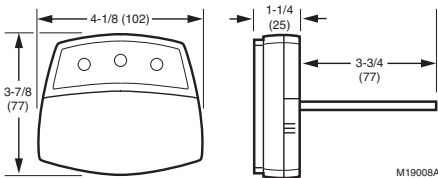


Fig. 1. C7835A dimensions in in. (mm).

INSTALLATION

When Installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After completing installation, use these instructions to check out the product operation.

IMPORTANT

Do not locate the DATS probe in a duct near the heat exchanger or strip heat, which can cause false temperature readings.

1. Locate the DATS on the supply trunk between the bypass damper and the evaporator coil and/or heat exchanger. If a bypass damper is not used, locate the DATS between the zone dampers and the evaporator coil and/or heat exchanger. See Fig. 2.

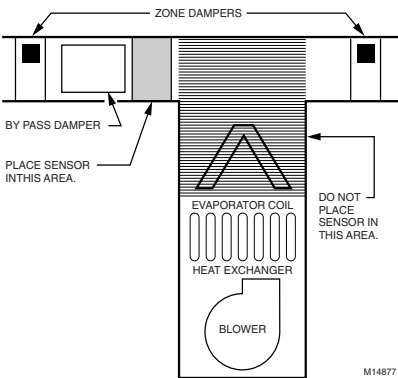


Fig. 2. DATS mounting location.



- 2. Drill a 5/16 in. hole in the duct at the location selected for the sensor.

NOTE: Be sure the shoulder washer is inserted, see Fig. 3, and fits tightly into the hole.

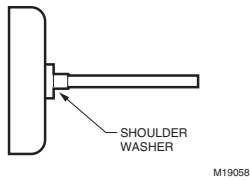


Fig. 3. Shoulder washer inserted on DATS.

- 3. Remove the cover from the DATS case and insert the probe into the hole drilled in step 2.
- 4. Secure the DATS to the side of the duct, through the two mounting holes in the back of the case, with the screws supplied.

- 5. Connect the three DATS terminals, see Fig. 4, using standard thermostat wire, to any convenient Enviracom 1,2, and 3 terminal connection. Observe that the red heating and green cooling lights come on momentarily.
- 6. Adjust the MAX Temp dial on the DATS to the appropriate high-limit setting. This can be set between 110°F and 160° F (43°C and 71°C). Note that settings between the lines are approximate settings. The cooling low limit is adjustable between 40°F (4°C) and 48°F (9°C) based on the jumper position.
- 7. Replace the cover on the DATS case.

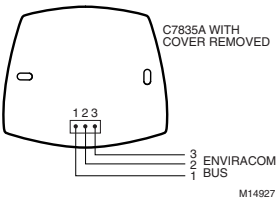


Fig. 4. DATS wiring to Enviracom™ bus.

TROUBLESHOOTING

Table 1. LED Operation.

When DATS LED is...	It means...	It is corrected when...
Continuously red in heating.	Heating limit was exceeded.	Duct air temperature falls 10°F.
Continuously green in cooling.	Cooling limit was exceeded.	Duct air temperature rises 10°F.
Flashing red.	Heating system alert. ^a	Discharge air is within 10°F of room temperature continuously in heating mode.
Flashing green.	Cooling system alert. ^a	Discharge air is within 8°F of room temperature continuously in cooling mode.

^aHeating or cooling system alerts can be cleared by cycling power, switching modes from heat to cool or vice versa, or automatically when the equipment begins to operate correctly.

See Table 2 for resistance reading for each temperature to determine if the DATS is reading the correct temperature. To obtain a correct resistance

measurement, remove the sensor probe P1 connector from the circuit board. Measure resistance across the two sensor wires.

Table 2. DATS Resistance Cross Reference^a.

Temperature (°F)	Resistance	Temperature (°F)	Resistance
32	33630	117	3915
33	32668	118	3830
34	31737	119	3747
35	30835	120	3666
36	29962	121	3587
37	29117	122	3510
38	28298	123	3435
39	27505	124	3362
40	26737	125	3290
41	25993	126	3221
42	25272	127	3153
43	24573	128	3086
44	23896	129	3021
45	23240	130	2958
46	22604	131	2896
47	21988	132	2836
48	21390	133	2777
49	20810	134	2720
50	20248	135	2664
51	19703	136	2609
52	19175	137	2555
53	18662	138	2503
54	18165	139	2452
55	17683	140	2402
56	17215	141	2353
57	16761	142	2306
58	16320	143	2259
59	15892	144	2214
60	15477	145	2170
61	15074	146	2126
62	14683	147	2084
63	14303	148	2043
64	13934	149	2002
65	13576	150	1963
66	13229	151	1924
67	12891	152	1886
68	12563	153	1849
69	12244	154	1813
70	11935	155	1778
71	11634	156	1744
72	11342	157	1710
73	11058	158	1677
74	10782	159	1645
75	10514	160	1613
76	10253	161	1582
77	10000	162	1552
78	9754	163	1523
79	9514	164	1494
80	9281	165	1466

Table 2. DATS Resistance Cross Reference^a. (Continued)

Temperature (°F)	Resistance	Temperature (°F)	Resistance
81	9055	166	1438
82	8835	167	1411
83	8621	168	1385
84	8412	169	1359
85	8210	170	1334
86	8013	171	1309
87	7821	172	1285
88	7634	173	1261
89	7453	174	1238
90	7276	175	1215
91	7104	176	1193
92	6937	177	1171
93	6774	178	1150
94	6615	179	1129
95	6461	180	1108
96	6311	181	1088
97	6164	182	1069
98	6022	183	1050
99	5883	184	1031
100	5748	185	1012
101	5617	186	994
102	5488	187	977
103	5363	188	959
104	5242	189	943
105	5123	190	926
106	5008	191	910
107	4895	192	894
108	4786	193	878
109	4679	194	863
110	4575	195	848
111	4473	196	833
112	4374	197	819
113	4278	198	805
114	4183	199	791
115	4092	200	777
116	4002	—	—

^aTo obtain a correct resistance measurement, be sure the sensor probe is disconnected from the circuit board.

For technical support, call 1-800-828-8367.
To download Zoning literature: www.resideo.com



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1-800-468-1502
69-1463-03 M.S. Rev. 06-20 | Printed in United States

