

C7735A1000 Discharge Air Temperature Sensor

INSTALLATION INSTRUCTIONS

APPLICATION

The C7735A1000 Discharge Air Temperature Sensor (DATS) is a duct-mounted temperature probe that provides capacity control of heating and cooling equipment. The DATS is used only with zoning solutions, including TZ-3, MABS EZ-2 and MABS EZ-4, and EMM-3 and EMM-3U control panels. 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.

When either limit setting is reached, the appropriate heat or cool light emitting diode (LED) flashes on the TZ-3 or EMM series panels, indicating that heating or cooling is shut off. 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. EMM series has a 2.5 minute timer as equipment protection.

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. DATS dimensions are shown in Fig. 1.

The DATS requires only two wires. Normal 18 to 22 gauge thermostat wire is used for shorter runs. For longer runs or when wiring near voltage, shielded cable is used.

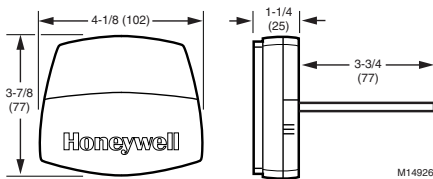


Fig. 1. C7735A dimensions in in. (mm).

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.

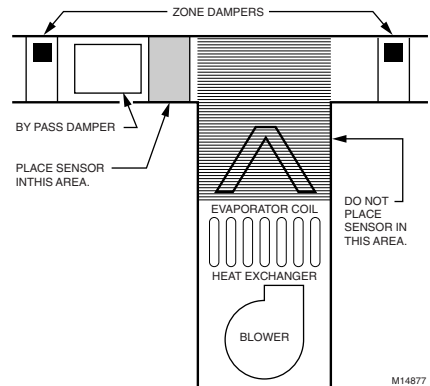


Fig. 2. DATS mounting location.



2. Drill a 1/4 in. hole in the duct at the location selected for the sensor.
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.

IMPORTANT

Use normal 18-22 gauge thermostat wire for shorter runs. For longer runs or when wiring near voltage, use shielded cable.

5. Check the resistance across the sensor leads and cross reference with Table 1.
6. Connect the two DATS wires, using the wire nuts supplied, to wires that connect to the TL and TL terminals on the TZ-3, MABS EZ-2, MABS EZ-4 or to the ZMS and ZMS terminals on the EMM series panels, through the wiring hole in the DATS case. See Fig. 3.
7. Replace the cover on the DATS case.
8. Adjust the MAX Temp dial on the TZ-3 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 fixed at 40 °F (4°C) on the TZ-3, Rev 2 and 3 panels. The TZ-3, Rev 4 panel, can be set at either 40 °F (4°C) or 48 °F (9°C). See TZ-3 panel instructions for further information.

9. Set the upper and lower limits on the EMM-3U using DIP switches 5 and 6.

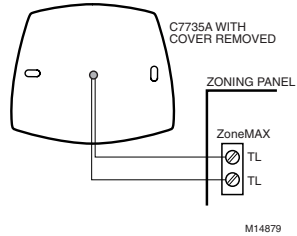


Fig. 3. DATS wiring to TZ-3 panel.

TROUBLESHOOTING

| When Zoning Panel LED is... | It means... | It is corrected when... |
|--|--|---|
| Flashing IDLE light five times on initial power-up (TZ-3). | No DATS is wired to the panel or there is an open circuit. | Circuit is closed. Note that the DATS Sensor is optional and not required for the TZ-3 to operate. |
| Flashing IDLE continuously (TZ-3). Flashing system light (EMM-3). Flashing purge light (EMM-3U). | A DATS failure or no sensor. | Unhook the loads and verify the resistance using step 5 of the Installation instructions. |
| Flashing HEAT light continuously. | DATS has tripped on high temperature limit and all stages of heating are shut off. | Reset because delivered air temperature drops 10°F (-12°C) from MAX Temp setting on the TZ-3 panel. 2.5-minute minimum wait required on EMM series panels. |
| Flashing COOL light continuously | DATS has tripped on low temperature limit and all stages of cooling are shut off. | Reset because delivered air temperature rises 10°F above fixed low temperature setting of 40°F (4°C) on TZ-3, Rev 2 and 3 panels, or 40° and 48°F (4°C and 9°C) on TZ-3, Rev 4 panels. 2.5-minute minimum wait required on EMM series panels. |

See Table 1 for readings in resistance for each temperature to determine if the DATS is reading the correct temperature. To obtain the correct resistance measurement, remove the two wires from the wire nuts and measure the resistance across the two wires.

Table 1. DATS Resistance Cross Reference.

| 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 | 160 | 1582 |
| 77 | 10000 | 162 | 1552 |
| 78 | 9754 | 163 | 1523 |
| 79 | 9514 | 164 | 1494 |

Table 1. DATS Resistance Cross Reference. (Continued)

| Temperature (°F) | Resistance | Temperature (°F) | Resistance |
|------------------|------------|------------------|------------|
| 80 | 9281 | 165 | 1466 |
| 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 | — | — |

For Internet access: www.trolatemp.com or
www.honeywell.com/yourhome/zoning/zoning_home.htm

For technical support, call 1-800-TAT-Temp (1-800-828-8367).
To download Zoning literature: <http://hbtechlit.honeywell.com>

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