



# MCS-SAIR

## Description & Specifications



Part # MCS-SAIR

### Specifications

Standard Temperature Range ..... +32 to +158°F  
 (0°C to +70°C)  
 Standard Temperature Accuracy ... ±0.36°F (±0.2°C)  
 Extended Temperature Range..... -40°F to +248°F  
 (-40°C to 120°C)  
 Extended Temperature Accuracy... ±1.5°F (±0.8°C)  
 Resistance Range ..... 2 Meg to 286 ohms  
 Response Time (32 to 212°F)..... 22 sec (in liquid)  
 Response Time (212 to 32°F)..... 30 sec (in liquid)  
 Input Voltage..... 5vdc  
 Sensor Resistance..... 100,000 ohms @ 77°F (25°C)

### Cable

Length..... 20', 40', 60', 100' or 150'  
 Wire..... 2 conductor 22 awg stranded  
 Shield..... Foil shield with 25% overlap  
 Drain..... Stranded tinned copper drain

**Part number description when ordering (MCS-SAIR-xx)**  
 xx..... 20', 40', 60', 100' or 150'  
 wire length

### Description

The **MCS-SAIR** consists of a MCS-T100 temperature sensor with an air supply bracket. The mounting base is 2" x 2" for inserting into an air duct with 20' or 40' of two-conductor shielded cable.

The probe is an extremely fast acting thermistor and is packaged in a watertight stainless steel deep drawn tube. The sensor is potted with a thermally conductive RTV cure silicon adhesive to guarantee durability and response.

The large resistance range allows the use of over 1000' of cable with no noticeable effect. By placing a 100,000 ohm resistor between signal and ground the sensor may be used in a three-wire input mode. Its high accuracy allows for interchangeability in the field. The table below provides a cross reference between °F, ohms and vdc at a sensor input pin (S1) of a MCS micro controller.

Temperature to Resistance to VDC Chart

Temp (°F)	Resist (ohms)	S1 (vdc)
21	491,039	0.846
22	476,042	0.868
23	461,550	0.890
24	447,544	0.913
25	434,007	0.936
26	420,922	0.960
27	408,271	0.984
28	396,041	1.008
29	384,214	1.033
30	372,778	1.058
31	361,718	1.083
32	351,020	1.109
33	340,672	1.135
34	330,661	1.161
35	320,976	1.188
36	311,604	1.215

Temp (°F)	Resist (ohms)	S1 (vdc)
37	302,535	1.242
38	293,758	1.270
39	285,263	1.298
40	277,040	1.326
41	269,080	1.355
42	261,373	1.384
43	253,910	1.413
44	246,684	1.442
45	239,686	1.472
46	232,908	1.502
47	226,342	1.532
48	219,982	1.563
49	213,820	1.593
50	207,850	1.624
51	202,063	1.655
52	196,456	1.687

Temp (°F)	Resist (ohms)	S1 (vdc)
53	191,021	1.718
54	185,753	1.750
55	180,647	1.782
56	175,696	1.814
57	170,897	1.846
58	166,243	1.878
59	161,730	1.910
60	157,353	1.943
61	153,109	1.975
62	148,991	2.008
63	144,997	2.041
64	141,123	2.074
65	137,363	2.106
66	133,715	2.139
67	130,175	2.172
68	126,740	2.205

Temp (°F)	Resist (ohms)	S1 (vdc)
69	123,406	2.238
70	120,169	2.271
71	117,027	2.304
72	113,977	2.337
73	111,015	2.369
74	108,139	2.402
75	105,347	2.435
76	102,634	2.467
77	100,000	2.500
78	97,441	2.532
79	94,955	2.565
80	92,541	2.597
81	90,194	2.629
82	87,915	2.661
83	85,699	2.693
84	83,546	2.724

Temp (°F)	Resist (ohms)	S1 (vdc)
85	81,454	2.756
86	79,420	2.787
87	77,444	2.818
88	75,522	2.849
89	73,654	2.879
90	71,838	2.910
91	70,072	2.940
92	68,355	2.970
93	66,685	3.000
94	65,060	3.029
95	63,480	3.058
96	61,943	3.088
97	60,448	3.116
98	58,993	3.145
99	57,577	3.173
100	56,200	3.201

Revision-2017-12-01