MODEL 065
TEMPERATURE SENSOR

OPERATION MANUAL

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1.0 GENERAL INFORMATION

1.1 Model 065 is an air temperature sensor designed to mount in 073B or 5980 Radiation Shields. The temperature sensor is shielded by concentric enameled aluminum plates to reflect solar energy. The shields are designed to greatly reduce errors due to direct solar radiation and reflected terrestrial radiation. The 073B and the 5980 are naturally aspirated. The 065 sensor is a precision thermistor unit that produces a resistance charge inversely proportional to temperature.

1.2 Sensor Cable and Connections

Model 065 is supplied with quick disconnect connector. Mating cables are supplied with several types of termination. Refer to cable drawings at end of this manual for particular wiring.

1.3 Specifications

Temperature Range	-30°C to +50°C
Radiation Shield Mounting	1-inch tubing or ¾ inch IPS pipe
Weight	2 pounds
Size	14-1/2 inches diameter 6-1/2 inches high

2.0 INSTALLATAION

2.1 Mount the radiation shield on a ¾ inch horizontal pipe. The unit will slide over the end of the pipe and will lock into place with the self-contained Allen head set screws. The horizontal pipe should be positioned so that the sensor will not be located too close to a potential heat source. Generally it is recommended that the unit be on the north side of a tower with the sensing unit at least 3 feet from the tower.

These sensors are durable, field proven devices; however,

DO NOT DROP OR EXPOSE THE SENSOR TO HEAVY SHOCK!!!

2.2 Wiring Connections

The output of the thermistor sensor has a relatively high resistance that varies inversely with temperature. It is important not to introduce any parallel resistance paths. A parallel resistance path may be established by a dirt/moisture build-up between two sensor leads. This may occur in poorly made splices and unprotected connections. It is advisable to always use a protective coating on exposed sensor connections. Use a coating such as silastic rubber (RTV).

2.3 Direct Wiring to a Met One Instruments Translator

When the sensor is connected directly to a Met One Instruments Translator Module the sensor is loaded with the appropriate resistor to provide a linear output.

2.4 Direct Connection to a Data Logger

When the sensor is connected to a data logger; the data logger must have a terminating resistor to provide a linear output. Refer to Figure 2-1.

3.0 OPERATIONAL CHECK-OUT AND CALIBRATION

3.1 Temperature Sensor Check-out

Compare sensor readings against a precision mercury thermometer or other temperature standard. Use either connected logger, translator Module or Ohmmeter to measure and compare readings of temperature vs. resistance.

4.0 MAINTENANCE AND TROUBLESHOOTING

4.1 General Maintenance Schedule*

6 – 12 Month Intervals:

A. Inspect sensor for proper operation per Section 3.1.

*Schedule is based on average to adverse environments.

4.2 Troubleshooting Procedures

Incorrect sensor signal: check sensor input connections; check temperature vs. sensor output signal using Table 3-1. Verify that the sensor has the correct terminating resistor if not used with a Met One Instruments Translator.

4.3 Temperature Sensor Calibration

The sensors are tested for calibration conformity at the factory. It is not possible to make alterations to the sensor's calibration, as it is fixed.

4.4 Calibration Verification

Install the 065 inside of a Styrofoam container (ice chest) and push a glass thermometer into the container. With the top on the container and no air leaks it is possible to verify the operation of the sensor ±0.5°C within 30 to 60 minutes.

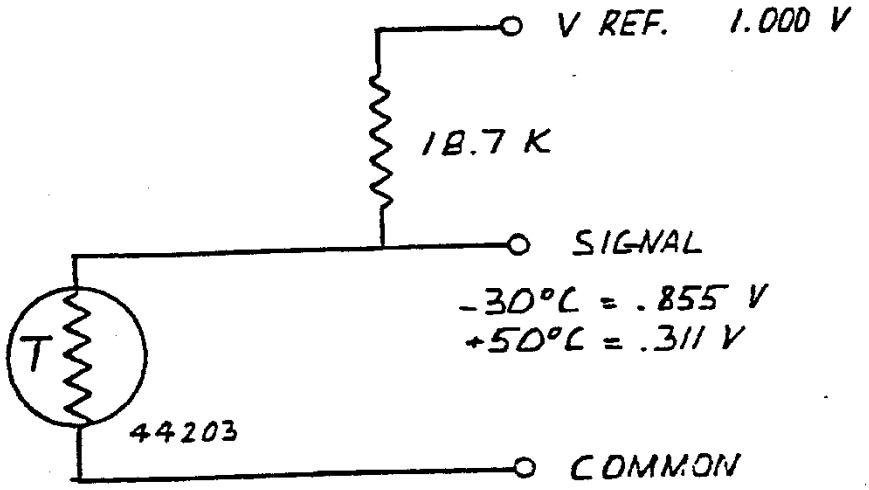
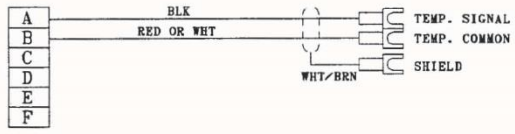


Figure 2-1

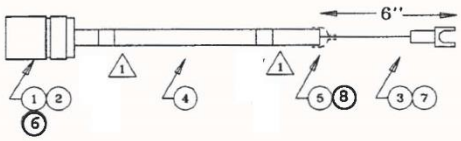
CONNECTIONS OF 065 TO DATALOGGERS

B/O .9"
Strip wires 1/4"
Fill with RTV

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
C	REDRAWN PER E.O. 1131	9/11/91	DH
D	E01428	22OCT96	RW
D-1	Revised Items & Notes.	11/23/09	DRS
D-2	Revised Items 4 & 5.	6/11/15	DRS



SENSOR END TRANSLATOR END

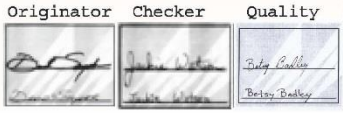


SOLDER CUP VIEW

Item	Part No.	Description	Qty.
1	500108	Connector, 6 pin, Female	1
2	995140	RTV-162	A/R
3	600196	Lug, Spade	3
4	400010	Cable, 2 Cond, Shld, 22AWG	A/R
5	960045	Tubing, Shrink, 3/16" Black	A/R
6	960075	Tubing, Shrink, 1/8" Black	A/R
7	980510	Wire, 22AWG, Wht/Brwn,Strnd	6"
8	960041	Tubing, Shrink,1/16" Black	A/R
9			
10			

⚠1 IDENTIFY CABLE 18" FROM EACH END.
DASH NUMBER = LENGTH IN FEET.

Originator Checker Quality



MET ONE INSTRUMENTS

ASSY, CABLE,
SINGLE TEMPERATURE

SIZE | FSCM NO. | DWG NO. 1958 | Rev D-2

SCALE | SHEET 1 OF 1

Table 3-1A
Model 065 RESISTANCE CHART

TEMP DEG C	RCAL	TEMP DEG C	RCAL
-30	110236	10	26155
-29	104464	11	25436
-28	99187	12	24739
-27	94344	13	24064
-26	89882	14	23409
-25	85760	15	22775
-24	81939	16	22159
-23	78388	17	21561
-22	75079	18	20980
-21	71988	19	20416
-20	69094	20	19868
-19	66379	21	19335
-18	63827	22	18816
-17	61424	23	18311
-16	59157	24	17820
-15	57014	25	17342
-14	54986	26	16876
-13	53064	27	16421
-12	51240	28	15979
-11	49506	29	15547
-10	47856	30	15126
-9	46284	31	14715
-8	44785	32	14314
-7	43353	33	13923
-6	41985	34	13541
-5	40675	35	13167
-4	39421	36	12802
-3	38218	37	12446
-2	37065	38	12097
-1	35957	39	11756
0	34892	40	11423
1	33868	41	11097
2	32883	42	10777
3	31934	43	10465
4	31019	44	10159
5	30136	45	9859
6	29284	46	9566
7	28462	47	9279
8	27667	48	8997
9	26899	50	8450

*VALUE WITH 18.7K RESISTOR IN PARALLEL WITH SENSOR

RANGE –30°C TO +50°C
THERMISTOR BEAD **44203**

Table 3-1A

Table 3-1B
Model 065 RESISTANCE CHART

TEMP DEG F	RCAL	TEMP DEG F	RCAL
-22	110236	33	34319
-21	106964	34	33757
-20	103855	35	33207
-19	100895	36	32669
-18	98075	37	32141
-17	95385	38	31625
-16	92816	39	31119
-15	90361	40	30622
-14	88011	41	30136
-13	85760	42	29659
-12	83602	43	29192
-11	81532	44	28733
-10	79543	45	28283
-9	77632	46	27841
-8	75794	47	27408
-7	74025	48	26983
-6	72321	49	26565
-5	70678	50	26155
-4	69094	51	25753
-3	67565	52	25357
-2	66088	53	24969
-1	64661	54	24587
0	63281	55	24212
1	61946	56	23843
2	60654	57	23481
3	59402	58	23125
4	58190	59	22775
5	57014	60	22430
6	55874	61	22091
7	54768	62	21758
8	53694	63	21430
9	52651	64	21108
10	51637	65	20790
11	50652	66	20478
12	49695	67	20170
13	48763	68	19868
14	47856	69	19570
15	46974	70	19276
16	46114	71	18987
17	45277	72	18703
18	44461	73	18422
19	43666	74	18146
20	42890	75	17874
21	42134	76	17606
22	41395	77	17342
23	40675	78	17081
24	39972	79	16825
25	39285	80	16572
26	38614	81	16322
27	37958	82	16076
28	37317	83	15834
29	36691	84	15595
30	36078	85	15359
31	35479	86	15126
32	34892	87	14897

Table 3-1B

Table 3-1B
Model 065 RESISTANCE CHART Continued

TEMP DEG F	RCAL	TEMP DEG F	RCAL
88	14670	106	11061
89	14447	107	10883
90	14227	108	10707
91	14009	109	10534
92	13794	110	10362
93	13583	111	10193
94	13374	112	10025
95	13167	113	9859
96	12963	114	9696
97	12762	115	9534
98	12564	116	9374
99	21368	117	9215
100	12174	118	9059
101	11983	119	8904
102	11794	120	8751
103	11607	121	8600
104	11423	122	8450
105	11241		

*VALUE WITH 18.7K RESISTOR IN PARALLEL WITH SENSOR

RANGE -22˚F TO +122˚F
TERMISTOR BEAD 44203
Tc= -(R*18700/(18700+R)-12175)/127.096
Rt = -(127.096*Tc-12175)*18700/(127.096*Tc-12175+18700)

Table 3-1B