SUBMITTAL DATA

Schwank
INNOVATIVE HEATING SOLUTIONS

ThermoControl Plus Series

PROGRAMMABLE ELECTRONIC CONTROLLER FOR SINGLE- AND TWO-STAGE INFRARED HEATING SYSTEMS

PROJECT:	
ENGINEER:	
CONTRACTOR:	
DISTRIBUTOR:	
MODEL ON PROJECT:	☐ ThermoControl Plus 1; P/N: JM-0504-TK-1
	☐ ThermoControl Plus 2; P/N: JM-0504-TK-2
	☐ ThermoControl Plus 4; P/N: JM-0504-TK-4
APPROVED BY:	
DATE:	
APPROVAL #:	

TC PLUS Submittal
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RL: 1B
RD: DEC 2011
BA

NOTICE:

Schwank reserves the right to make changes to equipment and specifications without obligation or notification.

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ThermoControl Plus
Infrared Heating System Controller

The ThermoControl Plus controller is specifically designed for control of single or two-stage commercial/industrial building infrared heating systems.

Available in three sizes, the controller can be used to control from 1 to eight single-stage zones and from 1 to 4 two-stage zones.

Controller has 24Vac 'wet' contacts - call for heat activates 24Vac to external power relay switch(es) in each zone.

The controller features programmable operating conditions for each single- or two-stage zone of gas-infrared luminous or tube heaters.

Black bulb sensors measure the radiant and ambient temperatures for true comfort control in the space and the controller switches the heater(s) on/off by internal and external relay switches.

- Optional communication module CM232 is complete with Windows based software and a modem to provides RS232 communication with a local computer or LAN control.
    - The CM232 is automatically recognized when installed in a ThermoControl Plus, and provides a unique address to the network controller.
    - The module allows the network controller to view, record, and modify any control parameters.
- Optional communication module CM485 provides RS485 communication with a network controller.
    - The CM485 is automatically recognized when installed in a ThermoControl Plus, and provides a unique address to the network controller.
    - The module allows the network controller to view, record, and modify any control parameters.
    - The CM485 employs MODBUS communication protocol. An interface and 'point' programming by others is required between the CM-485 communication module and an existing third party Building or Energy Management System.

	TC Plus 1	**TC Plus 2**	**TC Plus 4**
Black bulb sensors required:			
Single stage zones	2	Up to 4	Up to 8
Two stage zones	1	Up to 2	Up to 4
Internal control relays (24Vac)	2	4	8
External Zone relays included	2 x 12 FLA	4 x 12 FLA	8 x 12 FLA
Dimensions: inches	7-3/4 x 8-1/2 x 5-1/2	7-3/4 x 8-1/2 x 5-1/2	10-3/4 x 8-1/2 x 5-1/2
(mm)	(205 x 265 x 140)	(205 x 265 x 140)	(275 x 265 x 140)
NEMA 13 Enclosure	Yes	Yes	Yes

ThermoControl Plus Models and Ancillaries this Project:

Supplied Accessories

- 24Vac Transformer 100VA to power the controller
- One external relay switch per zone: 24V/120Vac, 50/60Hz, 12 FLA
  - Switches 120Vac power to heater zone
- Outdoor temperature sensor

Optional Accessories:

- Indoor black bulb sensor
  - Minimum one required per zone
  - Four required per zone for temperature averaging
- Setback override switch
- CM 232 Data Logger/LAN Remote Control
- CM 485 BMS Interface

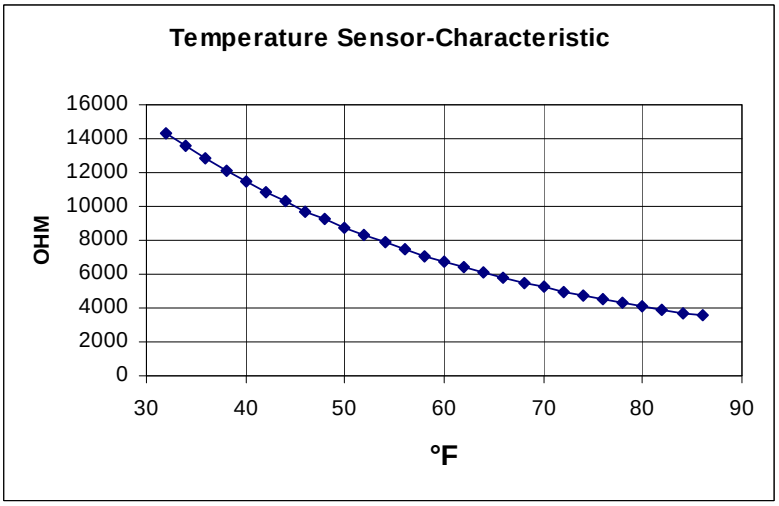
					SUPPLIED ITEMS	
Quantity this Project	Part Number	Model	Single-Stage Zones Up to ...	Two-Stage Zones Up to ...	24Vac/120Vac External Relay Switches	Outdoor Temperature Sensor
	JM-0504-TK-1	TC Plus 1	0	0	0	0
	JM-0504-TK-2	TC Plus 2	0	0	0	0
	JM-0504-TK-4	TC Plus 4	0	0	0	0
Optional Accessories:						
	JM-0505-XX	ThermoControl Radiant/Ambient Temperature Sensor				
	JM-0509-XX	Zone Setback Override - Push Button Switch				
	JS-0568-CC	24Vac/120Vac External Relay Switch (additional 2 required for each 2-stage tube heater)				
Communication Modules:						
	JM-0511-XX	CM 232 LAN Data Logger, Remote Control with Software				
	JM-0513-XX	CM 485 MODBUS interface to external BMS/EMS				

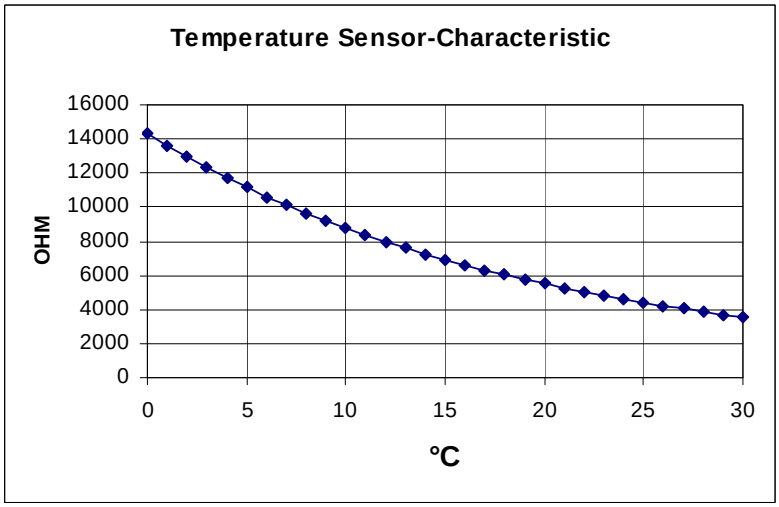
Technical Specifications & Features:

- Enclosure: NEMA 13 watertight; UV-resistant; transparent door; key lock
- 'Wet' Control Relays: 24Vac, 50/60 Hz, 6.3 Amp max. load
- 24Vac output to external zone relay that activates exhaust fan, heaters
- Each Controller Includes:
  - 100VA transformer to power controller
  - One external zone relay (24Vac/120Vac) per single-stage zone
  - Outdoor Temperature Sensor
- Input: black bulb sensor 5 to 174 ohm -22 to 104°F (-30 to 40 °C)
- 1 or 2 stage radiant heating control (zone specific)
- 8 programmable holiday periods
- Fuses: 5 x 20mm, F1: 6.3A (F = Fast), F2: 125 mA T (T = Time Lag)
- Operating Temperature: 32 to 122°F (0 to 50°C)
- Storage Temperature: 32 to 140°F (0 to 60°C)
- Temperature control range: 37 to 95°F (3 to 35°C)
- Selectable ºF / ºC temperature display
- Temperature averaging capability (4 IR sensors/zone)
- Outdoor temperature sensor (SA)
- 'Smart' adaptive recovery: based on outdoor temperature, adjusts system ramp-up - desired occupied temperature is achieved at the programmed time.
- 'On' cycle record at each output
- Real-time clock with calendar, including automatic summer / winter correction
- Battery backup
- EEPROM memory
- Illuminated display
- Error relay
- Optional communications cards: CM/RS 232; CM/RS 485

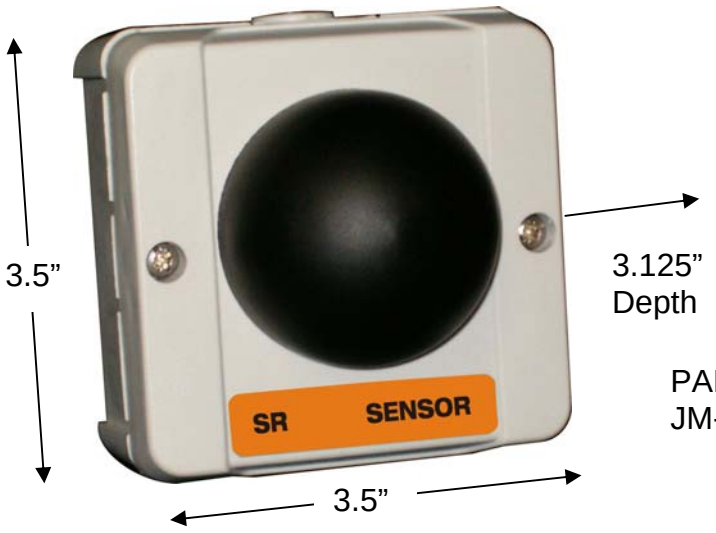
Temperature Sensor-Characteristics

°F	OHM
32	14324
34	13539
36	12802
38	12110
40	11460
42	10848
44	10273
46	9732
48	9223
50	8744
52	8293
54	7867
56	7466
58	7088
60	6732
62	6395
64	6078
66	5778
68	5495
70	5227
72	4974
74	4735
76	4509
78	4295
80	4092
82	3900
84	3718
86	3546





°C	OHM
0	14324
1	13615
2	12946
3	12313
4	11715
5	11149
6	10614
7	10107
8	9628
9	9174
10	8744
11	8336
12	7950
13	7584
14	7237
15	6907
16	6595
17	6298
18	6016
19	5749
20	5495
21	5253
22	5024
23	4805
24	4598
25	4400
26	4212
27	4033
28	3863
29	3701
30	3546



3.125”
Depth

PART NUMBER:
JM-0505-XX