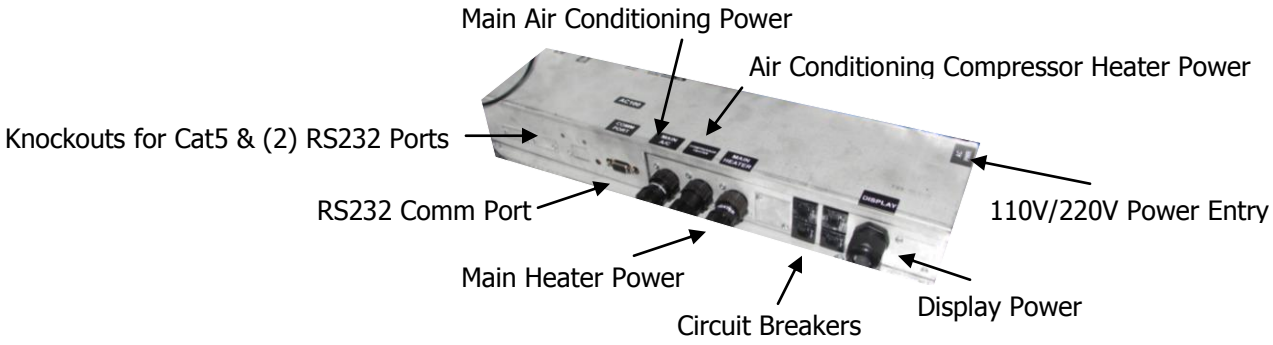
DISPLAY DEVICES

Environmental Controller

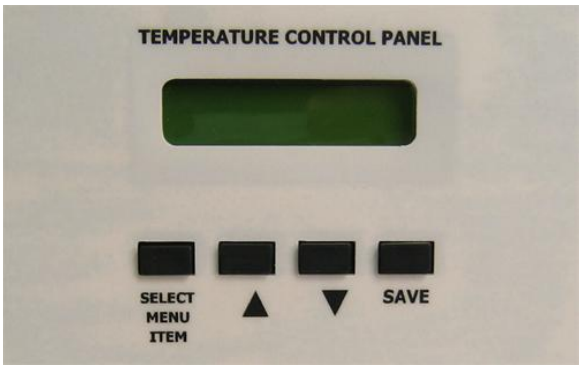
UNITS WITH AIR CONDITIONERS MUST SIT UPRIGHT FOR 24 HOURS BEFORE BEING POWERING UP!

Power Requirements: One or two 15 amp circuits for air-conditioned/heated models (depending on model)



Temperature Controller Operation

The Temperature Controller in its basic configuration controls and displays the temperature of the enclosure. While operating, the display will show the current temperature and alarm status, if any.



DISPLAY DEVICES

For Models with Air Conditioning

There are five parameters to set for your desired operation. Each is set in the same manner. On the control panel there are four buttons. The "Select Menu Item" button allows you to select the parameter you wish to adjust. The current setting is shown when you press the button. The next button (up arrow) will change the level up, and the next button (down arrow) will change the level down. The "Save" button will save your selections. The changes you've made will be lost if you do not press "Save" after making your selections. The five parameters are as follows:

Set Heat: Temperature at which the heater will turn on. Factory setting is 45 degrees (all settings in Fahrenheit).

Set Air Conditioning: Temperature at which the air conditioner will come on. Factory setting is 72 degrees.

Set Alarm Level: Temperature at which the alarm will sound. There is an onboard alarm, (which may be disabled) and a dry contact out to tie into an external alarm system. Factory setting is 110 degrees.

Set Power Level: Temperature at which the switched AC outlet on the power supply will turn off. This is a last measure attempt to prevent damage to equipment by turning off power. Factory setting is 120 degrees. **NOTE: If your current draw is over 10 amps do not use this switched AC outlet.**

Temperature Readout: Select either Fahrenheit or Celsius. Factory setting is Fahrenheit.

Fan Only Version

Set Level Fan 1: Temperature at which the first set of fans will come on. Factory setting is 80 degrees (all settings in Fahrenheit).

Set Level Fan 2: Temperature at which the second set of fans will come on. This may not be on all models or equipment. Factory setting is 95 degrees.

Set Alarm Level: Temperature at which the alarm will sound. There is an onboard alarm, (which may be disabled) and a dry contact out to tie into an external alarm system. Factory setting is 110 degrees.

Set Power Level: Temperature at which the switched AC outlet on the power supply will turn off. This is a last measure attempt to prevent damage to equipment by turning off power. Factory setting is 120 degrees.

Temperature Readout: Select either Fahrenheit or Celsius. Factory setting is Fahrenheit.

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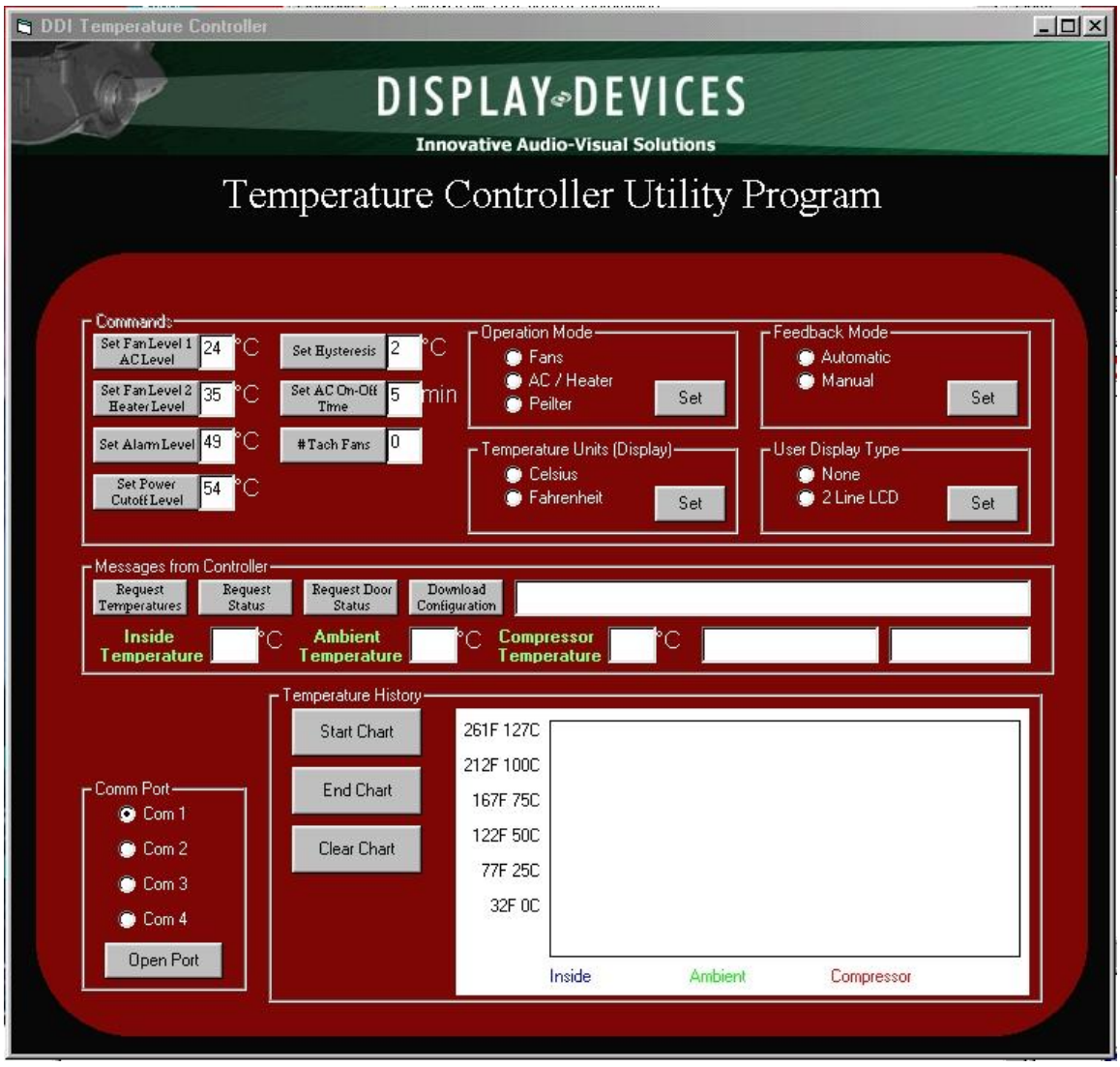
Temperature Controller Utility Program

A Utility Program is available for monitoring and setting up the enclosure. Display Devices makes this program available to qualified technicians for setting up and analyzing the unit. Please call your DDI sales representative for access to this program.



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DISPLAY DEVICES

Temperature Controller
RS232 Interface (Version 70409)
Active AC / Heater

Hardware Standard three pin hookup, 2,3,5, on DB9. Baud rate 9600,N,8,1. No handshaking.
Software ASCII letters followed by a delimiter, carriage return (ASCII 13).

Commands from Host to Controller:

Command	Description	Example
Q1	Request Current Temperature	Q1↵
Q2	Enclosure Status	Q2↵
Q3	Door Switch Status	Q3↵
Q4	Motion Sensor Status	Q4↵
Q5	Request Ambient Temperature	Q5↵
Q6	Request AC compressor Temperature	Q6↵
Q7	Request Temp Sensor 4 Temperature	Q7↵
Rx	Request configuration of Unit – x is 1 to 11 1 – Operation mode 2 – Hysteresis 3 – User Display Temperature Units 4 – Number of fans with Tachometers 5 – Feedback mode 6 – AC ON/OFF Delay 7 – User Display Type 8 – Fan Level 1 / AC Level 9 – Fan Level 2 / Heater Level 10 – Alarm Level 11 – Power Cutoff Level	R2↵
Axxx	Fan Mode – Set level that zone 1 fans turn on AC Mode - Set level that AC turns on/off at (will turn on if temp above this level)	A22↵
Bxxx	Fan Mode – Set level that zone 2 fans turn on AC Mode – Set level that Heater turns on/off at (will turn on if temp below this level)	B15↵
Cxxx	Set Alarm Level (alarm on if hotter than this level)	C30↵
Dxxx	Set Power Cutoff Level (cutoff if above this level)	D32↵
Sx	Set configuration of Unit – x is 1 to 7 1 – Operation mode 2 – Hysteresis 3 – User Display Temperature Units 4 – Number of fans with Tachometers 5 – Feedback mode 6 – AC ON/OFF Delay 7 – User Display Type	S25↵

xxx-temperature ↵ –Carriage Return (13)

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DISPLAY DEVICES

Responses from Controller to Host:

Command (see above)	Response	Description	Example
Q1	Txxx	Current Temperature	T23↵
Q2	O	Temperature good, no problem	O↵
Q2	G	AC On	G↵
Q2	H	Heater On	H↵
Q2	I	Alarm On	I↵
Q2	J	Power has been switched off	J↵
Q2	F	Temp Sensor Failure – Unit off	F↵
Q3	S (O,C)	Door Switch is Open/Closed	SO↵ SC↵
Q4	M	Motion Sensor Tripped (0-No, 1-Yes)	M0↵ M1↵
A,B,C,D	K	Received Set command, Executed OK	K↵
Q5	Axxx	Current Ambient Temperature	A24↵
Q6	Cxxx	Current AC compressor Temperature	C57↵
Rx	Rx : xx…	Configuration information return Rx is the same as above, see notes for more info	R1:2↵
-	X	Can not understand Command	X↵

xxx-temperature ↵ Carriage Return (13)

Notes: All temperatures are in Celsius.
Set temperature ranges are from 1 to 80 Celsius.
Return temperature has a space after the 'T' if positive, a – if negative.
If temperature sensor failure, Return will be ERR – 'T ERR'.
Return temperature range is –60 to +80.
In Fan Mode do not set Bxxx equal or below Axxx !
In AC – Peilter Mode do not set Bxxx equal or above Axxx!

DO NOT ADJUST CONFIGURATION unless necessary
Configuration information:
S1, R1 – Operation Mode 1:fans, 2:AC, 3:Peilter
S2, R2 – Hysteresis 2 to 9 minutes
S3, R3 – User Temperature Units 'C' Celsius, 'F' Fahrenheit
S4, R4 – Number of Tachometer Fans 0 to 14
S5, R5 – Feedback Mode 'A' Automatic, 'M' Manual

(Manual means responses sent only when queried from host)
(If in Auto, responses sent automatically: G,H,I,J,F,SO,SC,M0,M1) S6, R6 – AC on/off Delay 2 to 9 minutes S7, R7 – Display Type 0:none, 1: 2 Line LCD, 3: Graphical LCD R8 – Temp setting of level 1 (or AC on) R9 – Temp setting of level 2 (or Heater on) R10 – Temp setting of Alarm on R11 – Temp setting of power cutoff

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