

Proprietary Accessories for Fiber Optic Communications

Subminiature Temperature Controlled Heaters

ThermOptics™ offers a complete line of Subminiature Temperature Controlled Heaters. You simply attach one of these devices to the surface of the part to be heated, select a temperature set resistor, and apply voltage. The temperature controlled heater will automatically supply the exact amount of power needed to precisely regulate the temperature of the device to the temperature programmed by the resistor. No other components are needed.

Temperature controlled heaters are available that operate from unregulated D.C. power supplies of 5 to 50 Volts and can provide up to 40 Watts of heating power. There are also A.C. temperature controlled heaters that operate on 115 or 240Vac that can provide up to 80 Watts of heating power.

The versatility of the ThermOptics™ heaters allows them to be used in almost any application that has a thermal stability problem, such as in sensitive electronic components, electro-mechanical assemblies, and in chemical reactions, as well as in various temperature sensitive sensors.

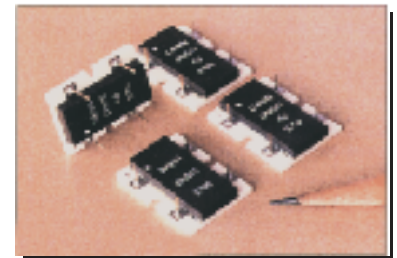
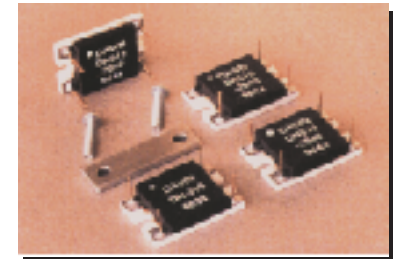
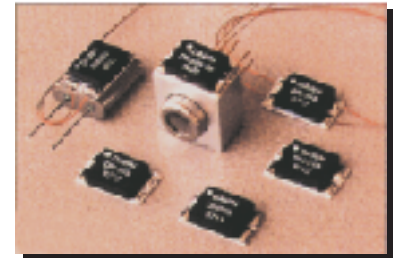
Features

- ▶ Precision Temperature Control
- ▶ Temperature Control From Ambient to 100°C
- ▶ Electrically Isolated from Heating Surface
- ▶ Beryllia Base for Good Thermal Conduction
- ▶ Temperature Set with a Single resistor
- ▶ Simple to Use
- ▶ No External Temperature Controller Needed

A Series: This is our smallest and lowest power configuration, ideal for controlling the temperature of oscillators, SAW filters, lasers, and for fiber optic applications.

B Series: High performance low noise, ideal for industrial, military, and fiber optic applications where precise temperature control is required.

C Series: These devices operate directly from the line voltage of 115Vac to 240Vac. They provide precise temperature control for industrial, fiber optic and military applications.



Optical Power Monitor



The DN135 is a current to voltage converter that is intended for use in fiber optic power monitors. The device converts current from a photodiode to voltage that is proportional to the incoming optical power in dBm. The DN135 functions equally well with InGaAs and Silicon photodiodes.

FEATURES

- ▶ 70dB DYNAMIC RANGE
- ▶ CONVERTS CURRENT LEVELS FROM 100pA to 2mA
- ▶ 0.500 VOLTS OUTPUT PER DECADE INCREASE IN OPTICAL POWER
- ▶ OPERATES FROM ± 5 VOLTS SUPPLIES

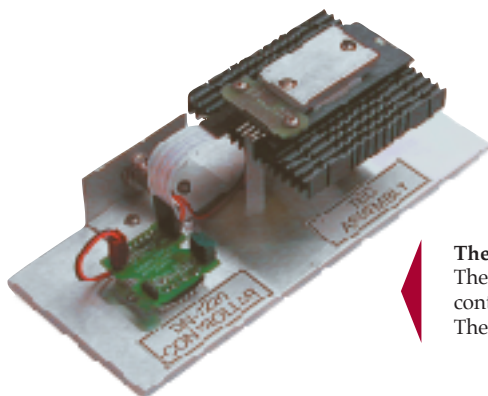
DN 1220 Thermoelectric Cooler Controller

The DN1220 TEC Controller operates from a single 5 to 15 Volt supply. It is designed for fixed temperature OEM applications. A thermistor, attached to the TEC, and a user selected resistor, determine the set temperature. Stability of 0.01°C can be achieved. An interconnect P.C. board and evaluation kit are available.



FEATURES

- ▶ Proportional and Integral Control.
- ▶ Gain and Integrator time constant set with single resistors. **No external Integrator Capacitor needed**
- ▶ Single supply voltage operation + 5 to + 15 Volts.
- ▶ ± 2 Ampere drive capability.
- ▶ Independent cool and heat current limit adjustments.



The DN1220-EVK

The DN1220 evaluation kit contains the DN1220 TEC controller, the DN1220 interconnect P.C. board, and a Thermoelectric Cooler Module.

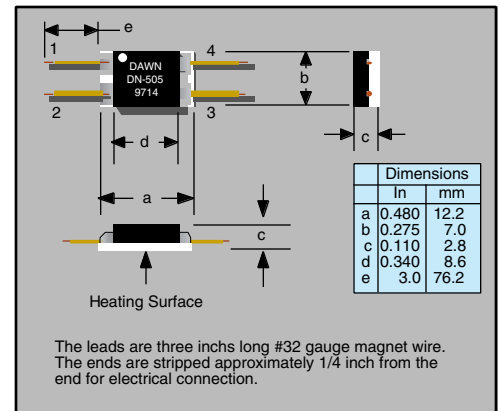
ThermOptics™
www.thermoptics.com

Formerly Dawn Electronics Inc.

Basic Specifications for the Standard Proportionally Controlled Heaters

Catalog Number	Series	V _{IN} (Volts)	P _{MAX} (Watts)	I _{MAX} (Amps)	V _{S(MIN)} (Volts)	V _{S(MAX)} (Volts)
DN-505-05	A	5 Vdc	5	1.0	4.5 Vdc	5.5 Vdc
DN-505	A	15 Vdc	10	0.7	5.0 Vdc	16 Vdc
DN-510	A	50 Vdc	15	0.35	24 Vdc	55 Vdc
DN-515-1528	B	15 Vdc	28	1.9	9 Vdc	18 Vdc
DN-515	B	28 Vdc	28	1.0	20 Vdc	35 Vdc
DN-515-2840	B	28 Vdc	40	1.43	20 Vdc	35 Vdc
DN-520-40	C	115 Vac	30	0.28	100 Vac	125 Vac
DN-520-50	C	115 Vac	50	0.43	100 Vac	125 Vac
DN-525	C	240 Vac	80	0.32	100 Vac	250 Vac

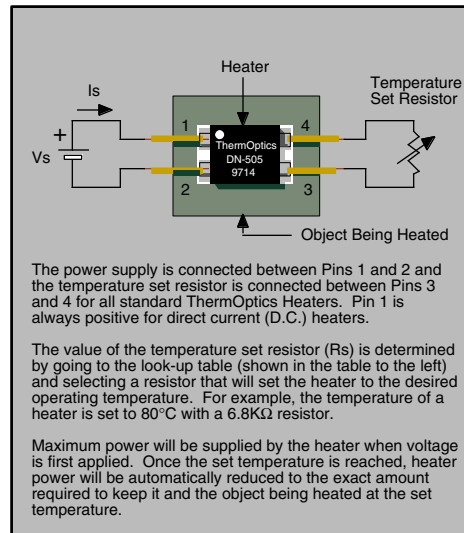
A Series



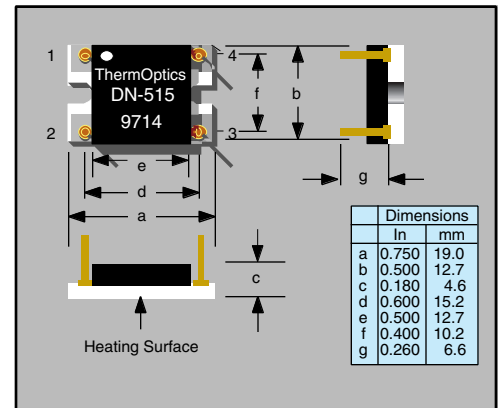
Heater Temperature vs Temperature Set Resistor

T °C	RS KΩ	T °C	RS KΩ	T °C	RS KΩ	T °C	RS KΩ
0	360.1	29	79.6	58	20.2	87	4.6
1	340.6	30	75.8	59	19.3	88	4.4
2	322.3	31	72.2	60	18.4	89	4.1
3	305.0	32	68.8	61	17.5	90	3.9
4	288.7	33	65.5	62	16.7	91	3.6
5	273.4	34	62.5	63	15.9	92	3.4
6	259.0	35	59.5	64	15.2	93	3.2
7	245.4	36	56.8	65	14.5	94	3.0
8	232.5	37	54.1	66	13.8	95	2.8
9	220.4	38	51.6	67	13.2	96	2.6
10	209.0	39	49.2	68	12.5	97	2.4
11	198.3	40	46.9	69	11.9	98	2.2
12	188.1	41	44.8	70	11.4	99	2.0
13	178.5	42	42.7	71	10.8	100	1.8
14	169.4	43	40.7	72	10.3	101	1.68
15	160.8	44	38.9	73	9.8	102	1.52
16	152.7	45	37.1	74	9.3	103	1.37
17	145.1	46	35.4	75	8.9	104	1.23
18	137.8	47	33.8	76	8.4	105	1.09
19	131.0	48	32.3	77	8.0	106	0.95
20	124.5	49	30.8	78	7.6	107	0.82
21	118.3	50	29.4	79	7.2	108	0.70
22	112.5	51	28.1	80	6.8	109	0.58
23	107.0	52	26.8	81	6.5	110	0.46
24	101.8	53	25.5	82	6.1	111	0.35
25	96.9	54	24.4	83	5.8	112	0.25
26	92.2	55	23.2	84	5.5	113	0.14
27	87.8	56	22.2	85	5.2	114	0.04
28	83.6	57	21.2	86	4.9		

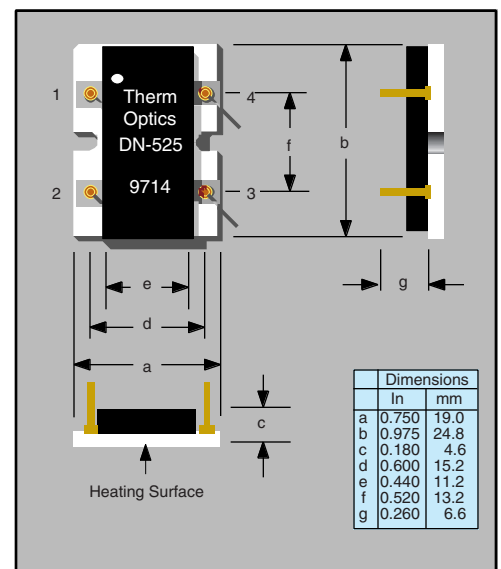
Electrical Hook-up of the Temperature Controlled Heaters



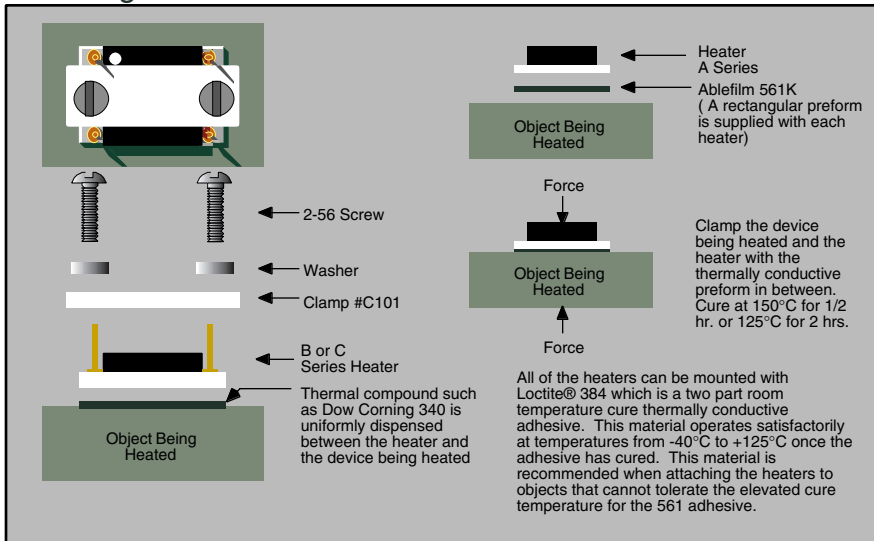
B Series



C Series



Mounting the Heaters



Definitions:

- V_{SN} Specified operating voltage for the heater
- P_{MAX} Maximum heating power that the heater can deliver at the specified operating voltage V_{SN}
- I_{MAX} Maximum power supply current drawn by the heater when the supply voltage is equal to V_{SN}

Notes:

- V_{S(MIN)} & V_{S(MAX)} are the minimum and maximum voltages at which the heaters will operate satisfactorily
- A.C. heaters operate on 47Hz to 400Hz line frequency.