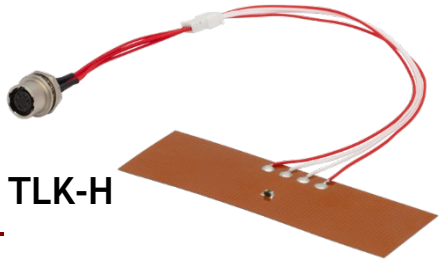
Flexible Polyimide Foil Heater with 10 kΩ Thermistor and 6 Pin Hirose Connector



TLK-H

Description

The TLK-H is a 1" x 3" flexible polyimide foil heating element with an integrated NTC thermistor for closed-loop temperature control. It features a 6 pin Hirose connector and an acrylic pressure-sensitive adhesive backing for easy installation. It can be connected to Thorlabs' TC300 general-purpose temperature controller with a TC200CAB10 6-Pin Hirose Cable.

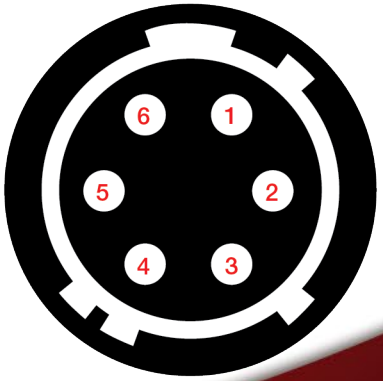
Specifications

General Specifications			
Temperature Range			-32 to 100 °C (-26 to 212 °F)
Material			Kapton/Acrylic Adhesive
Heater Resistance			19.7 Ω ±10% or ±0.5 Ω, Whichever is Greater
Heating Capacity			10 W/in^2 (0.016 W/mm^2) @ 70 °C
Thermistor Sensor Type			NTC
Thermistor Resistance (R_0) at Room Temperature (T_0 = 25 °C)			10 kΩ
Thermistor Beta (ß)			3750 K
Minimum Bend Radius			0.5" (12.7 mm) in Thermistor Area, 0.030" (0.8 mm) in All Other Areas
Effective Heating Area			2.23 in^2 (1438.7 mm^2)
Dimensions	**Thickness**	**Kapton**	0.002" (0.05 mm)
		Acrylic	0.001" (0.03 mm)
	Length x Width		1" x 3" (25.4 mm x 76.2 mm)
Wire Lengths	**To Molex Connection**		5" (127.0 mm)
	Molex to Hirose Adapter		2" (50.8 mm)
Wire Gauge			26 AWG

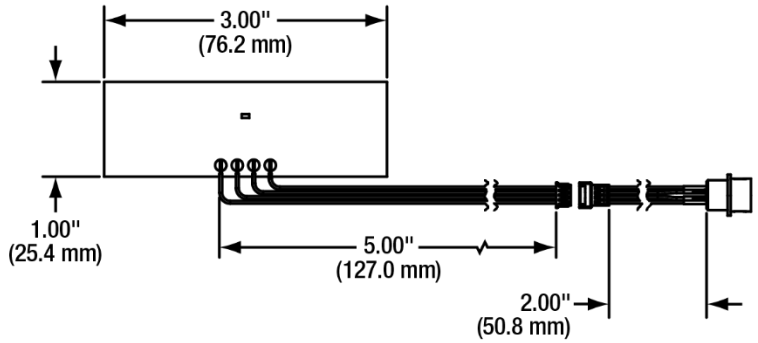
Pin Diagram

Hirose Connector Pin Assignments	
Pin	Connection
1	Heater[a]
2	Heater[a]
3	Not Connected
4	Thermistor[a]
5	Thermistor[a]
6	Not Connected

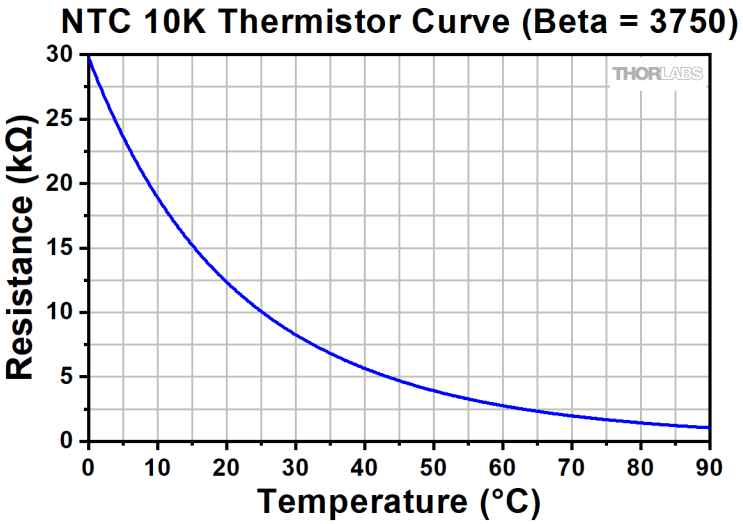
a. Heater and Thermistor Connections are Not Polarized



Drawing



Typical Performance Plots



The resistance of the NTC 10K Thermistor is given by

$$R_T = 10\,000\, e^{\left(\beta\left(\frac{1}{T+273}-\frac{1}{298}\right)\right)},$$

where R_T is the resistance in ohms (Ω) at T
and T is the temperature in degrees Celsius (°C).