

# Band Heaters, Quartz Far-Infrared Heaters

Note that, for some of the types shown here, order might be unable to be received by the MISUMI Indonesia offices.

# Peltier Effect Cooling Units Controller

Instruction manual is available online:  
http://fa.misumi.jp/ht/

### Band Heaters

**MBHS (One-piece)**  
(Single-phase 200V)

**MBHS40 only**

**MBHD (Two-piece)**  
(Single-phase 200V)

**Example**

OK: The heater is closely contacting the heated object.

NG: The heater is not contacting the heated object.

Accessory: Insulation Glass (MBHS: 2 pcs. / MBHD: 4 pcs.)

Material: Cover of the Heater: SUS430  
Mica for Insulation: Synthetic Mica  
Nickel-chrome Wire: Nickel Chrome Ribbon Wire

Maximum Operating Temperature: 300°C  
Lead Wire Heat Resistance Temperature: 180°C

Part Number	Type	No.	(d)	V (Voltage)	W (Electric Power)	L	Electrical Power Density (W/cm <sup>2</sup> )	Unit Price
MBHS	40	40	40	200	150	30	4.0	
	50	50	50		200			
	100	100	100		250			
MBHD	120	120	120	200	300	50	2.0	
	150	150	150		400			

- #### Features
- The band heater is a thin cylinder heater, coated with stainless steel plate, whose nickel-chrome wire is insulated with the heat-resistant mica board.
  - One-piece type and two-piece type are available for different diameters of the heated object.
  - One-piece Type: Suitable for the cylinder of small diameter. 1 unit (2 pcs.) of terminals are included.
  - Two-piece Type: Suitable for the cylinders of relatively large diameter. 2 units (4 pcs.) of terminals are included.

- #### Usage
- Band heater can be used for cylinder shaped heated objects (workpiece).
  - Principal usages are: Heating of hot nozzles, pipes and cylinder shaped metal plates

- #### Precautions for Use
- Never operate the heater when it is empty. Doing so may result in damage to the unit.
  - Apply electric power under the condition in which an object such as metal to be heated is attached to the heater.
  - Attach the object so that the heater comes into close contact with the surface to be heated. Leaving a gap will cause the wire to break earlier than its service life.
  - After installation, energize it for several minutes, and tighten them once more after heated. In doing so, be sure to avoid burn injury.
  - The heater is not waterproof. Never expose the heater to water or any other liquids.
  - Do not use over the rated voltage (V).
  - Use the temperature controller for safety.
  - Do not mount One-piece Type flat. (Put the heated object through the heater).

### Quartz Far-Infrared Heaters

**MPHHS (Set)**  
Quartz Far-Infrared Heater + Reflection Mirror + Mounting Holder (2 pcs.) Single-phase 100V/200V

**MPHH (Quartz Far-Infrared Heater)** Single-phase 100V/200V

**Materials**

- Quartz Tube: Quartz Glass
- Heater Cap: Brass + Nickel Plating
- Terminal: 303 Stainless Steel Equivalent
- Reflection Mirror: A1050
- Side Plate: A1050
- Holder Mounting Metal Fitting: SS400 + Ni Chrome Plating

The customer should assemble the MPHHS (set), which is a set of quartz far infrared heater, reflection mirror and mounting holder.

#### How to Mount

- Fix the "mounting holder" to the "mounting metal" installed on the reflection mirror.
- Fix the reflection mirror and mounting holder to the designated place by using M5 screw for mounting holder or by drilling holes on reflection mirror body.
- Hold the "heater cap" of quartz far infrared heater by "mounting holder". Do not hold it by "quartz tube" or "safety insulator".

#### Cautions on Installation

- After heating, tighten the nuts once more. (By heat expansion, it may be loosened).
- Additional tightening of the tightening bolt is recommended to only one side as Quartz Far Infrared Heater may be broken due to the different coefficient of heat expansion.

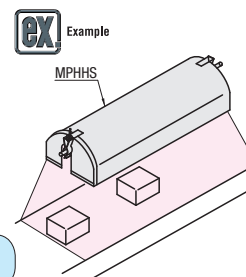
Part Number	Type	L (Effective Length) 10mm Increment	V (Voltage) Selection	W (Electric Power)	Unit Price	
					MPHHS	MPHH
MPHHS (Set)		150~240	100	250		
		250~340	100	400		
		350~440	100	500		
			200	500		
MPHH (Quartz Far Infrared Heater only)		450~540	100	600		
		550~600	200	600		
			100	1000		

- #### Features
- The quartz far infrared heater has Nickel-chrome wires wrapped inside the quartz glass tube, which irradiate far infrared ray to the heated objects.
  - Although its function is similar to that of far infrared ceramic heaters, compared with ceramic heaters, it has the features as follows: ① Rise/Drop in temperature are quick after the power is supplied; ② Relatively broad heat distribution; ③ Irradiant heat radiation direction is easily controlled.
  - The far infrared ray uniformly heats the surface and interior of the object.
  - The temperature adjustment can be done by adjusting the distance to the heated object.
  - This is a clean heater with little dust scattering. The used quartz tube has excellent chemical resistance.
  - By using the reflection mirror, the irradiation direction of far infrared ray can be controlled, and more effective heat radiation can be obtained.

- #### Cautions for Use
- These products are made of glass. Be extremely careful with handling since it is easy to break. Turn off the power immediately when the glass is broken during operation.
  - These products are for horizontal (lateral) use. Not usable in position of vertical (standing positioned) and slant (oblique positioned).
  - This heater becomes very hot. If it is touched while the power is on or immediately after the power is turned off, this might cause burn injury.
  - The cap part (insulators on both ends of quartz tube) should be used at the temperature lower than 100°C.
  - Do not touch the glass tube by bare hand. Sodium from sweat decreases the mechanical strength of quartz tubes.

- #### Usage
- Desiccation of the Base and Material
  - Baking Finish and Desiccation of the Paint

Because infrared ray heats the object directly through no air, it is more efficient.



Features: Special controllers designed to adjust the temperature of Peltier Effect Cooling Units on P.1649. Excels in high precision control.

**PLCN**

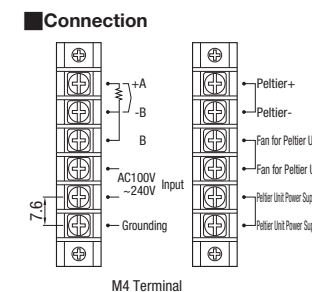
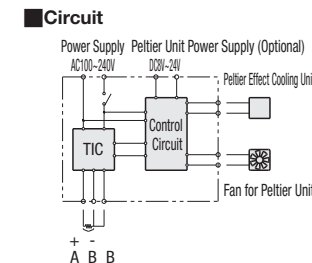
Dimensions: 110 (width), 180 (height), 11 (depth), 88 (width of base), 11 (width of base), 15 (width of top), 165 (width of top), 14 (width of top), 25 (width of base), 130 (width of base), 25 (width of base).

Part Number	Unit Price
PLCN	1 ~ 2 pc(s).

For orders larger than indicated quantity, please check with WOS.

Input	Thermocouple (K, J, R, T, N, S, B), Temperature Measuring Resistor (Pt100 JPt100)
<b>Control Method</b>	PID control with auto tuning, PID control with self tuning, ON/OFF control
<b>Indication Accuracy (Thermocouple)</b>	The bigger one of ±0.3% of specified value +1 digit or ±2°C
<b>Indication Accuracy (Temperature Measuring Resistor)</b>	The bigger one of ±0.3% of specified value +1 digit or ±0.9°C
<b>Indication Accuracy Maintenance Temperature Range</b>	Ambient Temperature: 23±10°C
<b>Display Breakdown Capability</b>	0.1°C
<b>Temperature Setting Range</b>	-30°C~120°C
<b>Proportional Control (P)</b>	0.1~200%
<b>Integration Time (I)</b>	0 ~ 3,600 sec.
<b>Derivative Time (D)</b>	0 ~ 3,600 sec.
<b>Peltier Driving Method</b>	PWM driving
<b>Power Supply</b>	Supplied externally (DC9 ~ 24V)
<b>Consumption Current</b>	15VA
<b>Peltier Driving Capability</b>	DC24V 7A (maximum in regular time)
<b>Operating Environment</b>	Indoors
<b>Operating Temp. Range</b>	+10~40°C
<b>Operating Humidity Range</b>	85% or Less (No Condensation)
<b>Sampling Frequency</b>	500mS
<b>Storage Element</b>	EEPROM
<b>Power Supply Voltage</b>	AC 100~240V (Allowable Voltage Change Range 85 ~ 264V)
<b>Power Consumption</b>	15VA (max.)
<b>Mass</b>	Approx. 2.7kg

**Overview**  
Peltier Effect Cooling Unit (P.1649) Temperature adjustment controllers capable of heating/cooling control of Peltier Effect Cooling Units. Owing to the compact design specialized in control function, suitable for not only offline use but also for being built into devices such as small size chillers and testers. (Power source needs to be obtained by customer.)



- #### Precautions for Use
- Only one Peltier Effect Cooling Unit (P.1649) can be connected to one controller.
  - DC power source or power plug is not included.
  - This product can be used at 9 ~ 24V DC, but please note that rated voltage of PELT30, 40 (P.1649) is 12V.

#### Sensor Input Types and Sensor Range

Sensor	Lower to Upper Limit	Setting of Decimal Point
00 K Thermocouple	-200~1372	-199.9~990.0
01 J Thermocouple	-200~850	-199.9~850.0
02 R Thermocouple	0~1700	
03 T Thermocouple	-200~400	-199.9~390.0
04 N Thermocouple	-200~1300	-199.9~990.0
05 S Thermocouple	0~1700	
06 B Thermocouple	0~1800	
10 Pt100Ω	-199~500	-199.9~500.0
11 JPt100Ω	-199~500	-199.9~500.0

#### Warranty

Warranty Period: One year from the shipping date.  
Warranty Condition: Please present the guarantee card included at the time of delivery.  
Coverage of Warranty: Problems or damages arising through the normal usage in compliance with the instruction manual included at the time of delivery.  
If trouble occurs during the warranty period even though the unit has been used in the proper manner, we will collect and repair/replace the unit.  
In the following cases, repairs are fare-paying services. We will collect the product and make an quotation.  
① When the damage is caused by a factor other than covered by the warranty and the product is repairable.  
② When the damage has occurred beyond the warranty period and the product is repairable.

