

Band Heaters / Quartz Far Infrared Heaters

Peltier Cooling Unit Controller

Instruction manual is available online:
<http://fa.misumi.jp/ht/> (in Japanese only)

CAD Date Folder Name: 55_Heaters

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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 touching to the heated object.

Material: Cover of the Heater : SUS430
 Mica for Insulation : Synthetic Mica
 Nickel-chrome Wire : Nickel Chrome Ribbon Wire
 Lead Wire : Nickel Copper Coated Wire
 Lead Wire Heat Resistance Temperature: 180°C

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

Part Number Type	No.	(d)	V (Voltage)	W (Electrical Power)	L	Electrical Power Density (W/cm)	Unit Price
MBHS	40	40	200	150	30	4.0	3,140
	50	50		200	2,958		
	100	100		250	3,686		
MBHD	120	120	300	50	2.0	3,959	
	150	150	400	4,277			

Order Example: Part Number MBHS40 Delivery 5 Days P87

Volume Discount Rate (Round up to the Baht.) P87

Quantity	Unit Price	Rate
1-10		5%
11-15		10%
16-20		

For orders larger than indicated quantity, please request a quotation.

- 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.
 - Max Operation Temperature: 300°C
- Usage**
- Band heater can be used for cylinder shaped heated objects (work).
 - Principal usages are: Heating of hot nozzles, pipes and cylinder shaped metal plates
- Precautions for Use**
- Do not let the heaters run in open air, for that will cause fires and heater element damages.
 - 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. A gap will cause premature breakage of wire.
 - After installation, energize it for several minutes, and tighten them once more after heated. At that time, take care not to be burnt.
 - The heater is not waterproof. Avoid water splashes on the heaters.
 - 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 (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 : SUS303
 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 screws 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 (Electrical Power)	Unit Price	
				MPHHS	MPHH
MPHHS (Set)	150~240	100	250	4,186	2,275
	250~340	100	400	4,869	2,639
	350~440	100	500	5,506	3,003
MPHH (Quartz Far Infrared Heater only)	450~540	100	600	6,143	3,413
	550~600	200	600	6,825	3,777
		200	800		

Order Example: Part Number MPHHS - L - V Delivery 12 Days

Volume Discount Rate (Round up to the Baht.) P87

Quantity	Unit Price	Rate
1-10		5%
11-15		10%
16-20		

For orders larger than indicated quantity, please request a quotation.

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 heater it has the features as follows: (1) Rise/Drop in temperature are quick after the power is supplied (2) Relatively broad heat distribution (3) Irradiated heat direction is easily controllable
- 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.

Notes on Use

- These products are made of glass. Be extremely careful with handling, since it is easy to break.
- Turn off the power immediately when broke 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. It may result in burn injury if touched while light is on or immediately after lights-out.
- 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 Coat
- Baking (Processing), Dehydration and Desiccation of Food

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

Features: Special controllers designed to adjust the temperature of Peltier Cooling Unit P.1533. Excels in high precision control.

PLCN

Dimensions: 110 (width), 180 (height), 165 (depth), 180 (width of fan area), 14 (height of fan area)

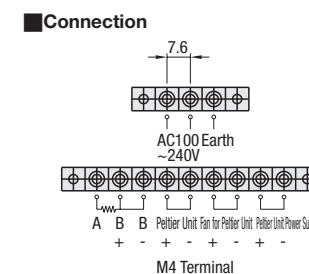
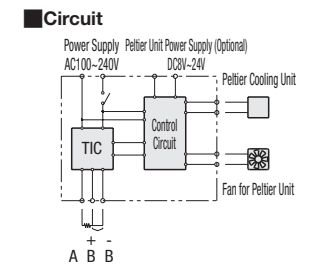
Part Number	Unit Price
PLCN	1 ~ 2 pcs. 34,808

For orders larger than indicated quantity, please request a quotation.

Order Example: Part Number PLCN Delivery 7 Days

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

Overview
 Peltier Cooling Unit (P.1533) Temperature adjustment controllers capable of heating/cooling control of Peltier Cooling Units. Suitable for not only small chiller and experiment machine but also building into device owing to the compact design specialized in control function. (Power source needs to be obtained by customer.)



Precautions for Use

- Only one Peltier Cooling Unit (P.1533) can be connected to one controller.
- DC power source or power plug is not included.

Sensor Input Types and Sensor Range

Sensors	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

Example

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 operated in the normal manner, we will recover and repair or replace the unit. In the following cases, repairs are for consideration. We will recover the product and make an quotation.
 (1) When the damage caused by the factors out of warranty range and the product is repairable.
 (2) When the damage has occurred beyond the warranty period and the product is repairable.