

PRECISION THERMO-GRAVIMETRIC ANALYZERS PACKAGE (A.C./D.C./PULSE)

Introduction:

Precision low temperature thermogravimetric analysers are available in 8 different regular models apart from tailor made solutions virtually covering all industrial and research applications meeting all electrical, thermal, mechanical, and environmental specifications. Complete package consist of programmable micro-kelvin measurement/ power supply, and ultra precision mass measurement system with facility to alter temperature, humidity and other thermo-chemical parameters. These analyzers are first choice for online monitoring of ultra low Mass dynamic measurement with respect to variation in heat, humidity and other simulated climate parameters in static/dynamic mode. These finds applications in polymers, electrical, bio-technology, composite, chemical, railway, and avionics and solid state physical application like dielectrics characterization, switch gears, MEMS and many research and development activities. These precision instruments are able to simulate/measure/record with very high degree of accuracy/repeatability/reliability and are available in different constructional material like ceramic-coated MS, poly carbonate cabinets.

Benefits:

- High input impedance/Low input biased current /higher accuracy.
- 5-1/2 & 6-1/2 digit display /consistent performance.
- ce over large temperature/humidity range (70°C and 80 % RH) .
- Scaled directly in mili/micro kelvine with repeatable accuracy.
- Auto/manual zero offset without drift.
- Auto drift tracking
- RS-32 interface/high sample rate – 10,000 sample/second.
- Feed back current measurement technique.



MPTA-0009991



MPTA-0099991



MPTA-9999992

Thermal analysers static/dynamic. Range <999999 micro kelvin-999999 kelvin

| Model | Range °C | Pulse/D.C./Pulse Frequency Range | Thermal Burdon | Accuracy Restricted to Resolution level | Resolution Quantified/ optional | Thermal source /optional As demanded | interface |
|-----------------|---|----------------------------------|----------------|---|---------------------------------|--|------------|
| MPTA-9999990101 | 05.0/02.0 - 999999 mili°C 0009999-0999999 °C | 0.0-20 cycle | < 100 mili °C | 99.99999% | 2/5/10 mili °C | 05.0/02.0 - 999999 mili°C 0009999-0999999 °C | RS-232/USB |
| MPTA-9999990401 | 05.0/01.0 - 999999 mili°C 0999.99-0999999 °C | 0.0-20 cycle | < 100 mili °C | 99.99999% | 2/5 /10mili °C | 05.0/02.0 - 999999 mili°C 099.999-0999999 °C | RS-232/USB |
| MPTA-9999990102 | 10.0/05.0 - 999999mu°C 0.999999-0999999 °C | 0.0-20 cycle | < 100 micro °C | 99.99999% | 2/5/10 micro °C | 05.0/02.0 - 999999 mili°C 099.999-0999999 °C | RS-232/USB |
| MPTA-9999990402 | 10.0/01.0 - 999999mu°C 0.999999-0999999 °C | 0.0-20 cycle | < 100 micro °C | 99.99999% | 2/5/10 micro °C | 05.0/02.0 - 999999 mili°C 099.9999-0999999 °C | RS-232/USB |

Six digit after product code indicate count, next, Two digit indicate °C./next two digit indicate least count/last digit indicate Static-01/dynamic-02.

General electrical/mechanical specifications:

Operating voltage: 220 volt A.C. (50-20,000 Hz)/ 12 volts D.C.
 Measurement range (full scale): as above in different model.
 Temperature signal: 10⁻³/10⁻⁶ °C static/dynamic (optional) (differential/point mode)
 Thermal source: 0-40/0-100/0-500 degree cel-static/dynamic (pulse mode H.T)-optional
 Input thermal capacitance: 100 cal.sec/kg/degree k 10⁻⁶
 Response time: 1000 sample/sec
 Burden: less than 100 micro/mili °C /full scales current or better
 Accuracy: 0.5/1.0/2.0 % reading
 Repeatability: 100 of reading
 Resolution: 1/2/5/10 °C or optional and may be altered based on time behaviour of signal
 Range (°C): 10⁻⁶-10⁰ /10⁰-10⁺⁶ °C or optional resolution/accuracy
 Thermal least count- 5.0 micro°C/5.0 mii °C
 Linearity adjustment: upto 100 micro/mili °C
 Input imedence: ultra low(<0.01000 micro °C /burdon),
 Filtering: low pass(adjustable)
 Offset: variable upto 10,000 micro/mili °C (manual/auto)
 CMMR: >80 db at 10-15 thermal Hz
 Isolation: > 100 giga ohm
 Connector: BNC-9 pinx2 and BNC-25 pinx2
 Size: 5X8X8 inches/rack mounted or portable
 Interface: RS-232



MPTA-9999990402

Option: ADDITIONAL SOFTWARE to plot V/I OR ANY DESIRED INFERENTIAL PARAMETER.
 THESE SPECIFICATIONS OR PART THERE OF MAY BE MODIFIED TO MEET ANY TAILOR MADE SOLUTIONS.

NOTES: The numeral after product code indicates the (ampere meter) range and last digit corresponds to size (5x5x8, 8x8x12)

MOTORON SEMICONDUCTORS CORPORATION

11, Shri Nagar Colony, Shakti Nagar Extension, Delhi-110052 .Tel: 011-23648181/23655454
motoronenergy@hotmail.com

CONSTANT VOLTAGE/CURRENT POWER SUPPLIES

Programmable/Non-programmable

MHCLS-Series

Introduction:

MHCLS series of precision current/voltage supplies are available in (15.0 to 5000 watts), more than 20 different models working in constant voltage/current mode virtually offering solutions to precision measurement, electrochemical, corrosion, petrochemical industry, organic/inorganic chemical, heavy electrical/mechanical industries, non-conventional energy, solids state physics application and many uncountable defense/nuclear applications. Updated design topology ensures better controllability and efficiency with additional integrated power/voltage and frequency control/protection. These power supplies may operate in parallel to make it more redundant. Company offers tailor made solution to custom requirement.

Benefits:

Much lower current/voltage ripple (available in nano/pico range).

Faster control action.

Better repeatability/reproducibility.

Better electrical stability

Serial interface

Five/Six digit display



MHCLS-024100



MHCLS-024100



MHCLS-100100

SPECIFICATIONS OF CONSTANT VOLTAGE POWER SOURCE

Power range <400

| Model | Watts | Vmax | I _{max} | Repetition rate in case of pulse/sec x10 | Resolution Quantified/ optional | Ripple | Accuracy %-reading | Zout 10 ⁻⁴ | Step down range | cooling |
|---------------|--------|-------|------------------|--|---------------------------------|-----------|--------------------|-----------------------|-----------------|---------|
| MHCLS1-012002 | 024.0 | 12.0 | 002.0 | 100-10000 | 5 nV/5nA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-012004 | 048.0 | 12.0 | 004.0 | 100-10000 | 5 nV/5nA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-012008 | 096.0 | 12.0 | 008.0 | 100-10000 | 5 nV/5pA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-025005 | 050.0 | 25.0 | 002.0 | 100-10000 | 5 nV/5pA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-025010 | 0100.0 | 25.0 | 004.0 | 100-10000 | 5 nV/5pA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-025020 | 0200.0 | 25.0 | 008.0 | 100-10000 | 5 nV/5pA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-025032 | 0325.0 | 25.0 | 015.0 | 100-10000 | 5 nV/5fA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-050020 | 0200.0 | 50.0 | 004.0 | 100-10000 | 5 nV/5nA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-050004 | 0400.0 | 50.0 | 008.0 | 100-10000 | 5 nV/5nA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-100010 | 0100.0 | 100.0 | 001.0 | 100-10000 | 5 nV/5nA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-100020 | 0200.0 | 100.0 | 002.0 | 100-10000 | 5 nV/5nA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-200004 | 0400.0 | 200.0 | 002.0 | 100-10000 | 5 nV/5nA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-200008 | 0800.0 | 200.0 | 004.0 | 100-10000 | 5 nV/5nA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |
| MHCLS1-400020 | 2000.0 | 400.0 | 005.0 | 100-10000 | 5 nV/5nA | 0.000001% | 99.99999% | < 10 | 1:1000000 | Air |

SPECIFICATIONS OF CONSTANT CURRENT POWER SOURCE

POWER RANGE <200

| Model | Watts | Vmax | I _{max} | Repetition rate in case of pulse/sec x10 | Resolution % of FSM | Ripple | Accuracy %-reading | Zout | Step down Range | cooling |
|---------------|-------|-------|------------------|--|---------------------|-----------|--------------------|------------------|-----------------|---------|
| MHCLS1-012002 | 024.0 | 12.0 | 002.0 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-025005 | 050.0 | 25.0 | 002.0 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-025002 | 025.0 | 25.0 | 001.0 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-025005 | 050.0 | 25.0 | 002.0 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-050005 | 005.0 | 50.0 | 000.1 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-050005 | 050.0 | 50.0 | 001.0 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-100001 | 010.0 | 100.0 | 000.1 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-100020 | 100.0 | 100.0 | 001.0 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-200002 | 020.0 | 200.0 | 000.1 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-200002 | 200.0 | 200.0 | 001.0 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |
| MHCLS1-200004 | 040.0 | 400.0 | 000.1 | 100-10000 | 0.0000001% | 0.000001% | 99.999999% | 10 ¹⁸ | 1:1000000 | Air |

Three numerals x 100 after MHCLS indicates voltage of power supply and last three digit Indicates current. All dimensions are in inches.

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CONSTANT VOLTAGE/CURRENT LINEAR POWER SUPPLIES*Programmable/Non-programmable***MHCLS-Series****Constant voltage/ current power source specification:**

Operating voltage 220 volts, 1phase, 40-60 Hz

Output current/voltage :as in data sheet(ineare/pulse)

Voltage/current control accuracy: 99.9999% of set point or better for CC/CV

Ripple: 0.000001% of set point for voltage/0.000001% for CC or optional/amended

Resolution: 1/5 nV & 1/5 nano amps or 1/5 nV & 1/5 pico-amp or optional and may be altered based on time behaviour of signalRange (V/I): Voltage: 10^{-09} - 10^{-04} volt/ 10^{-4} - 10^{+1} volt least count- 5.0 nano voltCurrent: 10^{-12} - 10^{-07} amp/ 10^{-7} - 10^{-2} amp least count- 5.0 pico ampere or optional

Accuracy: 0.0000001% of set volts for (CV mode/0.0000001% of set current (CC mode)

Interface Signal 0.0-12.0 volts D.C. (proportional to Voltage/current control range)

Step down ratio 0-1000000 or option

Temperature coefficient of variation: $< 10^{-9}$ 12ppm

Control options 1.cascade feedback control with soft start

2. Constant voltage mode with external adjustment.

Display 5 $\frac{1}{2}$ & 6 $\frac{1}{2}$ digit LED display

OTHER OPTION: DC/AC/PULSE (100-10000 PULSE/SEC)

Protection over voltage/short ckt

Option: These power supplies may offer in pulse mode.

Interface: RS-232/U.S.B.

Constant voltage/current power source dimension:

| | | | |
|----------------------|-----------------|---------------------|-----------------|
| MHCLS-006050 | 08X06X06 | MHCLS-050150 | 14X12X12 |
| MHCLS-012050 | 10X06X06 | MHCLS-050200 | 16X14X14 |
| MHCLS-012100 | 12X08X08 | MHCLS-100025 | 18X16X16 |
| MHCLS-025025 | 12X10X10 | MHCLS-100050 | 20X18X18 |
| MHCLS-025050 | 12X10X10 | MHCLS-100100 | 20X18X18 |
| MHCLS-025100 | 12X10X10 | MHCLS-100150 | 20X18X18 |
| MHCLS-0025200 | 08X06X06 | MHCLS-100200 | 14X12X12 |
| MHCLS-050050 | 10X06X06 | MHCLS-100400 | 16X14X14 |
| MHCLS-200050 | 18X16X14 | MHCLS-200100 | 18X16X16 |

Three numerals x 100 after MHCLS indicates voltage of power supply and last three digit Indicates current. All dimensions are in inches.

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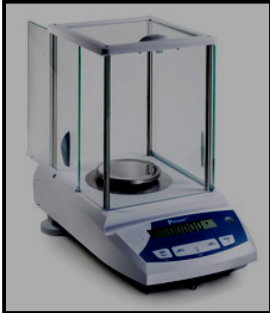
ULTRA-PRECISION BALANCE MACHINE INBUILT CONTROLLED CHAMBERS

Semi-active suspension/pulse electromagnetic technology

MICROCONTROLLER BASED

Introduction: MUPBM range of Pulse base ultra-precision balance machine is available in 10 different regular models apart from tailor made solutions to offer fine resolution measurement upto 100 nano- gram all industrial and research applications requirement like electrical, thermal, mechanical, and environmental specifications. These machines are used in mettallurgy, heavy electrical engineering industries, defense, process control, sugar, milk, chemical, fuel, petrochemical industrial electronics, railway, bio-chemical, medicine, Polymer composites and avionics and many research and development activities.

Operating Principle: These ultraprecision weighing scales are working on Fleming principle of electromagnetic force, where a current (I) carrying conductor of length (L) experience force (F) when placed in a magnetic field (B). This force is balanced by incremental weight under measurement using sensitive feedback controlled D.S.P. system and is converted into equivalent display. These measurement systems are immune to any climatical, mechanical, tribological, rheological, chemical constraints and displays very consistently with high level of accuracy.



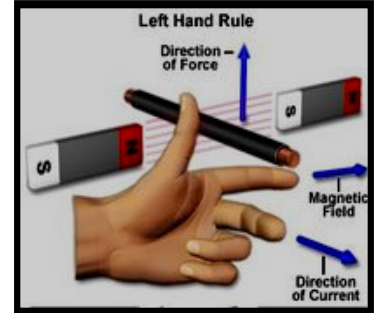
MUPBM-000021



MUPBM-002005



MUPBM-020005



WORKING PRINCIPLE

Models & Technical data of Ultra Precision balancing machine:

Weight<0.00200 to 200.000 grams

| Model | Max. Capacity gms | min-weigh measurement/ Tare weight (gms) or option | Step-down ratio (U=1, K=2/min-weigh count Subject to resolution) | Incremental resolution above min weight X Capacity (3-option) | Accuracy count restricted to resolution | Resolution Quantified- by count/optional | Pulse/D.C./Pulse Frequency |
|----------------|-------------------|--|--|---|---|--|----------------------------|
| MUPBM-0000021 | 00.002 | 01.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻⁴ | 1:4000000/1000 | 10x10 ⁻⁷ /10x10 ⁻⁸ /10x10 ⁻⁹ | 001 | 1/2/5/optional | Option |
| MUPBM-0000022 | 00.002 | 02.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻⁴ | 1:4000000/1000 | 20x10 ⁻⁷ /20x10 ⁻⁸ /20x10 ⁻⁹ | 002 | 1/2/5/optional | Option |
| MUPBM-0000025 | 00.002 | 05.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻⁴ | 1:4000000/1000 | 50x10 ⁻⁷ /10x50 ⁻⁸ /50x10 ⁻⁹ | 005 | 1/2/5/optional | Option |
| MUPBM-0000201 | 00.020 | 10.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻⁴ | 1:4000000/1000 | 10x10 ⁻⁷ /10x10 ⁻⁸ /10x10 ⁻⁹ | 001 | 1/2/5/optional | Option |
| MUPBM-0000202 | 00.020 | 20.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻⁴ | 1:4000000/1000 | 20x10 ⁻⁷ /20x10 ⁻⁸ /20x10 ⁻⁹ | 002 | 1/2/5/optional | Option |
| MUPBM-0000205 | 00.020 | 50.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻⁴ | 1:4000000/1000 | 50x10 ⁻⁷ /50x10 ⁻⁸ /50x10 ⁻⁹ | 005 | 1/2/5/optional | Option |
| MUPBM-0001001 | 00.100 | 10.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻⁴ | 1:4000000/1000 | 10x10 ⁻⁷ /10x10 ⁻⁸ /10x10 ⁻⁹ | 001 | 1/2/5/optional | Option |
| MUPBM-0001002 | 00.100 | 20.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻⁴ | 1:4000000/1000 | 20x10 ⁻⁷ /20x10 ⁻⁸ /20x10 ⁻⁹ | 002 | 1/2/5/optional | Option |
| MUPBM-0001005 | 00.100 | 50.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻⁴ | 1:4000000/1000 | 50x10 ⁻⁷ /10x50 ⁻⁸ /50x10 ⁻⁹ | 005 | 1/2/5/optional | Option |
| MUPBM-0005001 | 0005.0 | 10.0x10 ⁻⁵ /1.0x10 ⁻⁶ to ⁻³ | 1:4000000/1000 | 10x10 ⁻⁷ /10x10 ⁻⁸ /10x10 ⁻⁹ | 002 | 1/2/5/optional | Option |
| MUPBM-0005002 | 0005.0 | 20.0x10 ⁻⁵ /1.0x10 ⁻⁶ to ⁻³ | 1:4000000/1000 | 20x10 ⁻⁷ /20x10 ⁻⁸ /20x10 ⁻⁹ | 005 | 1/2/5/optional | Option |
| MUPBM-0005005 | 0005.0 | 50.0x10 ⁻⁵ /1.0x10 ⁻⁶ to ⁻³ | 1:4000000/1000 | 50x10 ⁻⁷ /50x10 ⁻⁸ /50x10 ⁻⁹ | 005 | 1/2/5/optional | Option |
| MUPBM-0100001 | 00010.0 | 10.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻² | 1:4000000/1000 | 10x10 ⁻⁷ /10x10 ⁻⁸ /10x10 ⁻⁹ | 001 | 1/2/5/optional | Option |
| MUPBM-0100002 | 00010.0 | 20.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻² | 1:4000000/1000 | 20x10 ⁻⁷ /20x10 ⁻⁸ /20x10 ⁻⁹ | 002 | 1/2/5/optional | Option |
| MUPBM-0100005 | 00010.0 | 50.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻² | 1:4000000/1000 | 50x10 ⁻⁷ /10x50 ⁻⁸ /50x10 ⁻⁹ | 005 | 1/2/5/optional | Option |
| MUPBM-0200001 | 00020.0 | 10.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻² | 1:4000000/1000 | 10x10 ⁻⁷ /10x10 ⁻⁸ /10x10 ⁻⁹ | 001 | 1/2/5/optional | Option |
| MUPBM-0200002 | 00020.0 | 20.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻² | 1:4000000/1000 | 20x10 ⁻⁷ /20x10 ⁻⁸ /20x10 ⁻⁹ | 002 | 1/2/5/optional | Option |
| MUPBM-0200005 | 00020.0 | 50.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻² | 1:4000000/1000 | 50x10 ⁻⁷ /10x50 ⁻⁸ /50x10 ⁻⁹ | 005 | 1/2/5/optional | Option |
| MUPBM-0500001 | 00050.0 | 10.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻² | 1:4000000/1000 | 10x10 ⁻⁷ /10x10 ⁻⁸ /10x10 ⁻⁹ | 001 | 1/2/5/optional | Option |
| MUPBM-0500002 | 00050.0 | 20.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻² | 1:4000000/1000 | 20x10 ⁻⁷ /20x10 ⁻⁸ /20x10 ⁻⁹ | 002 | 1/2/5/optional | Option |
| MUPBM-0500005 | 00050.0 | 50.0x10 ⁻⁴ /1.0x10 ⁻⁵ to ⁻² | 1:4000000/1000 | 50x10 ⁻⁷ /10x50 ⁻⁸ /50x10 ⁻⁹ | 005 | 1/2/5/optional | Option |
| MUPBM-01000001 | 00100.0 | 10.0x10 ⁻³ /1.0x10 ⁻³ to ⁻² | 1:4000000/1000 | 10x10 ⁻⁷ /10x10 ⁻⁸ /10x10 ⁻⁹ | 001 | 1/2/5/optional | Option |
| MUPBM-01000002 | 00100.0 | 20.0x10 ⁻³ /1.0x10 ⁻³ to ⁻² | 1:4000000/1000 | 20x10 ⁻⁷ /20x10 ⁻⁸ /20x10 ⁻⁹ | 002 | 1/2/5/optional | Option |
| MUPBM-02000005 | 00200.0 | 50.0x10 ⁻³ /1.0x10 ⁻³ to ⁻² | 1:4000000/2000 | 50x10 ⁻⁷ /10x50 ⁻⁸ /50x10 ⁻⁹ | 001/002/005 | 1/2/5/optional | Option |

Company provides dedicated solution meeting specific requirement.

General electrical/mechanical specifications:

- Operating voltage: 12 volts D.C. /220 Volts A.C./option
- Max Weighing range: 2.0 m.g. /20 m.g. /200 m.g. /2.0gms/5.0 gms/10.0 gms/20.0 gms/50.0 gms/100.0gms/200.0gms
- Min. weight: as above
- Eccentric load deviation: 25 times the least count
- Linearity:0.1/0.2/0.3% of F.S.
- Null voltage:0. 5/1/1.5% of F.S.V.
- Position offset/Gain: programmable
- Operating Temperature range: 60/100/200 Degree cel
- Temperature coefficients of measurement: 10x10⁻⁶ ppm/degree cel
- Power consumption: 5.0 V.A [max]
- Accuracy: 0.5/1.0/2.0 % reading
- Repeatability: deviation of +/- 1.3 average count over 30 minute for 25 degree variation temperature over amb
- Resolution: 1.0 nano/micro gram or as in data sheet
- Accuracy: restricted to least count
- Standard deviation: 2nd
- Differential Standard deviation: SQRT (8 x (10-14) g ·R_nt)
- Step down range: 1:10,00,00
- Stabilization time: 3-10 sec
- Temperature range/Rh: 0-70 degree cel/0-80%
- Range: four range (programmable)
- Control: control against three different set point
- Interface: RS-232/0-5 volt D.C./ proportional to weight
- Pan size/weight: Size: 213 x 342 x 90 mm/8.4 x 13.5 x 3.54 inch (pan size: 190 x 204 mm / 7.4 x 8.0 in)

NOTES: The Four numeral after product code indicates the (displacement in m.m.), and last digit corresponds AC/DC excitation (1-A.C., 2-D.C., 3-PULSE)



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TUBULAR/PLANAR HEATER/COOLER & CONTROLLERS

Introduction:

MHCT/MHTT/MHPT series of D.C. precision heater/coolers(tubular/planar) are available in many sizes and shapes virtually offering solutions to biotechnology, electrical measurement/protection, telecom, power systems, general industrial electronic utilities, process industries, public transportation, public/industrial load carriage, non conventional energy management applications, nuclear and defense, polymers and many other research & applications. Company also offers signal conditioners compatible with precision heater/coolers (tubular/planar).

Feature:

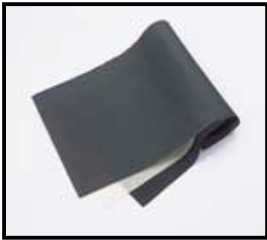
Material:

Eureka/in e home/tungsten (heater)/thermoelectric (coolers)

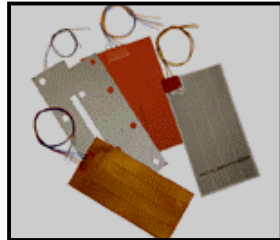
Compact with high tolerance

Low TCR with large peak current carrying capacity

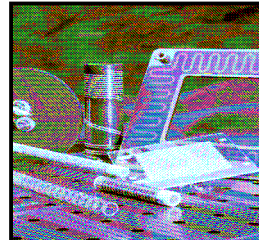
Large pulse current/weight ratio, large surface temperature< +/- 400degree cel



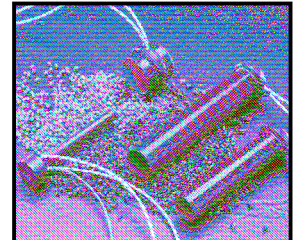
Thick film heater over glass substrate



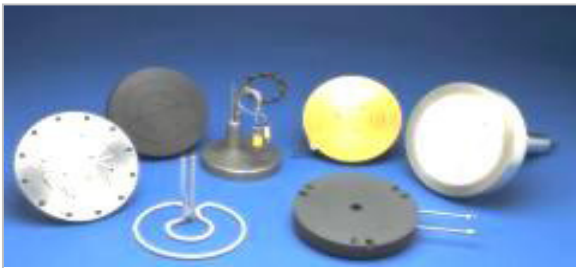
Thick film heater over MICA substrate



Thick film heater over glass substrate



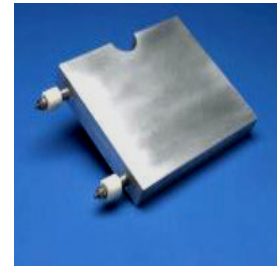
Thick film heater over ceramic tube



SPECIAL SHAPE HEATER/COOLERS FOR R&D/DEFENCE (tungsten/eureka/zirconium)



FLEXIBLE HEATER/COOLERS



PTFE coated hermetically sealed planar heater

Electrical specifications of Thick Film PLANAR Heater

Power <20000 watts

| model | Surface °C | voltage AC/DC | Power watts | Size m.m [L/B/H]/[D/H] | model | Surface °C | voltage AC/DC | Power watts | Size m.m [L/B/H]/[D/H] |
|-----------|------------|---------------|-------------|------------------------|-----------|------------|---------------|-------------|------------------------|
| MTFH-0001 | 100-400 | 12/24/110/220 | 1.0 | Tailor specs | MTFH-0200 | 100-400 | 12/24/110/220 | 200 | Tailor specs |
| MTFH-0005 | 100-400 | 12/24/110/220 | 5.0 | Tailor specs | MTFH-0400 | 100-400 | 12/24/110/220 | 400 | Tailor specs |
| MTFH-0020 | 100-400 | 12/24/110/220 | 20.0 | Tailor specs | MTFH-0800 | 100-400 | 12/24/110/220 | 800 | Tailor specs |
| MTFH-0050 | 100-400 | 12/24/110/220 | 50.0 | Tailor specs | MTFH-1000 | 100-400 | 12/24/110/220 | 1000 | Tailor specs |
| MTFH-0100 | 100-400 | 12/24/110/220 | 100.0 | Tailor specs | MTFH-2000 | 100-400 | 12/24/110/220 | 2000 | Tailor specs |
| MTFH-0150 | 100-400 | 12/24/110/220 | 150.0 | Tailor specs | MTFH-5000 | 100-400 | 12/24/110/220 | 5000 | Tailor specs |

Three numerals x 100 after MHCT indicate current of precision heater/coolers (tubular/planar). Company offers battery/main operated precision heater/coolers (tubular/planar) motor controllers.

MOTORON SEMICONDUCTORS CORPORATION

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