



Your partner in Power

Original design manufacturer for
Custom & Standard Power supplies



YOUR PARTNER IN POWER

HiTRON was founded in 1980 as a world class exclusive manufacturer of Power Supplies. We specialize in standard, modified standard and custom products. The goal of HiTRON group is to become Your Partner in Power and to provide you the best power supply solution and service in the world.

Headquarters in Taiwan

HiTRON group's headquarters is located in Kaohsiung, Taiwan. Housed in this ISO9001 facility are our administrative and marketing offices, R&D, engineering and QC units, pilot-run and small scale production lines. In the headquarters, we have a centralized engineering team whose in-depth knowledge of design combined with the low-volume quick-turn proto shop has enabled us to keep pace with the rigorous demands of the ever-changing electronics industry.



Headquarters
View of Kaohsiung HiTRON

Administrative & management group



Key management members



Finance & marketing office



Purchasing negotiation

R&D, engineering & QC group



R&D facility



Engineering station



QC station

Proto job shop and pilot-run line



Sample job shop



Pilot-run line



Prototype test

HiTRON, The Original Design Manufacturer (ODM)

HiTRON is the Original Design Manufacturer (ODM) of the Power Supplies.

Our engineers are experts at developing cost-effective solutions to any power requirement whether it is a standard product, semi-custom or full custom design. All power supplies are designed to meet global safety agency requirements including UL, cUL, BABT and TUV.

We are strongly committed to custom engineering, following strict design rules and testing each design in accordance to CE marking compliance with our in-house sophisticated equipment. To ensure the proper design margin, every new design is subjected to HiTRON's own advanced "HALT/HASS" test procedure.

Experienced design group



In-house sophisticated equipment



CE marking equipment



Advanced HALT/HASS test



Abundant Product Lines For Choice

Our product line catalog ranges from less than one watt up to more than 1,000 watts. It includes state-of-the-art switcher, traditional linear, PCB-mount modules, rack equipment and so on. The application fields are as diverse as data processing, telecommunication, data networking, computer peripherals, process control, medical and instrumentation.

1. Internal Switching AC/DC Power Supplies & DC/DC Converters

Open-frame & Enclosure format, Output Wattage Range: 5-1,000W, Single & Multiple Output.



2. External Switching AC/DC Adapters (Green Power)

Wall-mount & Desktop format, Output Wattage Range: 5-250W, Single & Multiple Output.



3. CompactPCI Switching AC/DC Power Supplies & DC/DC Converters

3U or 6U Height, Full or half-size format,
Output Wattage Range: 200-500W, Quad Output.



4. 19" Rack Eurocard Switching AC/DC Power Supplies & DC/DC Converters

3 or 6U with 6, 10, 12 and 14HP,
160 or 280mm Depth format,
With or Without PFC,
Output Wattage Range: 45-400W,
Single, Dual, Triple &
Multiple Output.



5. On-Board Modular Switching DC/DC Converters

Encapsulated Metal Case. Quarter or Half Brick format.
Output Wattage Range: 1-200W. Single, Dual & Triple Output.



6. PCB or Chassis Mount Modular Switching AC/DC Power Supplies

Encapsulated Plastic Case format. Output Wattage Range: 5-50W.
Single, Dual & Triple Output.



7. DIN-RAIL Switching Industrial Power Supplies

Horizontal or Vertical format. With or Without PFC. Output Wattage Range: 35-150W.
Single Output.



8. LED Driver – Switching AC/DC Power Supply

The input voltage is available from 90-264VAC with PFC.
Output Wattage Range: 3-160W. Single Output.



9. External Traditional Linear AC/DC Adapters

Regulated, Unregulated & Transformer Adapters.
Wall-mount & Desktop format.
Output Wattage Range: 5-110W, Single & Multiple Output.



10. Internal Traditional Linear AC/DC Power Supplies

Open-frame format, Output Wattage Range: 10-100W,
Single, Dual & Triple Output.



Flexible & Cost Effective Manufacturing For Any Size of Order

We also operate four ISO9001 manufacturing facilities in Taiwan and China. These enable us to offer cost effective power supplies at small, medium and high volume. By blending quickly responsible manual assembly and modern production techniques including SMT technology and auto-assembly in our multiple facilities, we have the production capacities for virtually any size order.

1. Manual & Quick-turn assembly for Small Size Order in Kaohsiung HiTRON TAIWAN



2. Flexible Assembly Process for Medium & Big Size Order in Fuzhou SANTRON CHINA



High-speed Automatic Assembly for Mass-production in Suzhou SANTRON CHINA



Universal Safety-Standard Products and Global ISO Certified Facilities

HiTRON's products are certified to the latest Global Safety and Regulatory Agency. Besides, CE marking is the basic requirement for all our products .



World Class Services

HiTRON commits itself to be your world class PARTNER IN POWER.

By rooting itself in Taiwan, HiTRON maintains the advantage of its experienced engineers.

By extending its capacities to China, HiTRON utilizes its huge labor resources.

By marketing worldwide, HiTRON provides its products and services to grow with you into the future!

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UNIVERSAL INPUT AC-DC MEDICAL & ITE APPLICATION EXTERNAL DESKTOP SWITCHING ADAPTER 10-12 WATTS GREEN POWER SINGLE OUTPUT HEMG10 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- MEET MEDICAL STANDARDS IEC60601-1 & ITE STANDARDS IEC60950-1
- NO LOAD POWER CONSUMPTION <0.3 W
- EMI MEET EN55011 & EN55022 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C14(DT7) / 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: 5.3Arms at 230Vac.
Input Current: Typical 0.2A at 115Vac / 0.11A at 230Vac
Dielectric Withstand: Meet IEC60950-1 and IEC60601-1.
EMI: Meet EN55011 and EN55022 / FCC Class B.
Hold-up Time: Typical 14.4mS at 115Vac/ 79mS at 230Vac.
Leakage Current: Typical 0.3mA for Class I.
Typical 0.1mA for Class II.
No Load Power: Less than 0.3W at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 10-12 Watts.
Output Connector: Optional.
Line Regulation: Typical 0.1%.
Load Regulation: Typical $\pm 2\%$.
Noise & Ripple: 1.0% typical peak to peak.
OVP: Built-in, Auto-Recovery.
Adjustability: Factory set.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 75-86% (various with the output voltage)
Switching Frequency: 60K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in less than 1mS following a 25% load change.
Safety Standard: Meet Medical standards UL60601-1/ EN60601-1, and ITE UL60950-1/EN60950-1 Class I for DT7(C14) or Class II for DT8(C8)
Operating Temperature: 0 to +40°C.
Storage Temperature: -20°C to +85°C.
Cooling: Free air convection.
Construction: Impact resistant thermo- plastic enclosure case.
Power Density: 0.8-0.96Watts / Cubic inch.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load is varied from half load to full load ($\pm\%$).

(3) The exact obtainable load regulation depends upon the output cord selected and load current. Upper data are for 6 ft. (2 m) cord AWG#18 wires.

(4) Due to requests in market and advances in technology, specifications subject to change without notice.



In application.

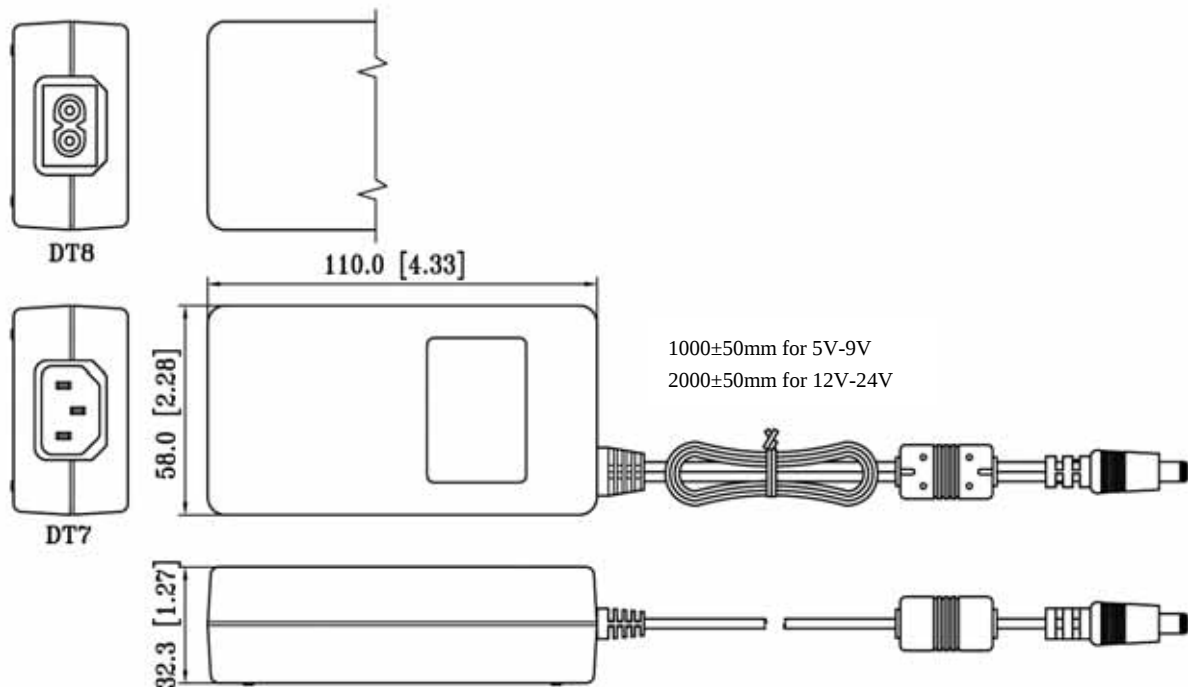
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEMG10-S050200-7	IEC320-C14(DT7)	5.0Vdc	2.0A
HEMG10-S050200-8	IEC320-C8(DT8)	5.0Vdc	2.0A
HEMG10-S090100-7	IEC320-C14(DT7)	9.0Vdc	1.0A
HEMG10-S090100-8	IEC320-C8(DT8)	9.0Vdc	1.0A
HEMG10-S120100-7	IEC320-C14(DT7)	12.0Vdc	1.0A
HEMG10-S120100-8	IEC320-C8(DT8)	12.0Vdc	1.0A
HEMG10-S150080-7	IEC320-C14(DT7)	15.0Vdc	0.8A
HEMG10-S150080-8	IEC320-C8(DT8)	15.0Vdc	0.8A
HEMG10-S240050-7	IEC320-C14(DT7)	24.0Vdc	0.5A
HEMG10-S240050-8	IEC320-C8(DT8)	24.0Vdc	0.5A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 232.0g (8.18Oz.)





UNIVERSAL INPUT AC-DC MEDICAL & ITE APPLICATION EXTERNAL DESKTOP SWITCHING ADAPTER 20-24 WATTS GREEN POWER SINGLE OUTPUT HEMG24 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- MEET MEDICAL STANDARDS IEC60601-1 & ITE STANDARDS IEC60950-1
- EMI MEET EN 55011 & EN55022 / FCC CLASS B
- NO LOAD POWER CONSUMPTION < 0.3W
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C14(DT7) / 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: 6.274Arms at 230Vac.
Input Current: Typical 0.347A at 115Vac/ 0.215A at 230Vac.
Dielectric Withstand: Meet IEC60601-1 & IEC60950-1.
EMI: Meet EN55011 & EN55022 / FCC Class B.
Hold-up Time: Typical 16.8mS at 115Vac. Typical 86.4mS at 230Vac.
Leakage Current: Typical 0.25 mA for Class I Typical 0.1mA for Class II.
No Load Power: Less than 0.3W at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 20-24Watts.
Output Connector & Cord: Optional.
Line Regulation: Typical 0.1%.
Load Regulation: Typical $\pm 1.8\%$ - $\pm 3\%$.
Noise & Ripple: 1.0% peak to peak.
OVP: Built-in by Auto-recovery.
Adjustability: Factory set.
Over Current Protection (OCP): Installed.
 Current limiting can be set precisely as per request.

GENERAL SPECIFICATION

Efficiency: Typical 78%-88% (various with the output voltage)
Switching Frequency: Typical 55K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in less than 3mS following a 25% load change.
Safety Standard: Meet Medical standards UL60601-1/ EN60601-1, and ITE UL60950-1/EN60950-1 Class I for DT7(C14) or Class II for DT8(C8)
Operating Temperature: 0°C to +40°C.
Storage Temperature: -20 to +85°C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic enclosure case.
Power Density: 1.6-1.9Watts / Cubic inch.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm\%$).

(3) The exact obtainable load regulation depends upon the output cord selected and load current.

(4) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

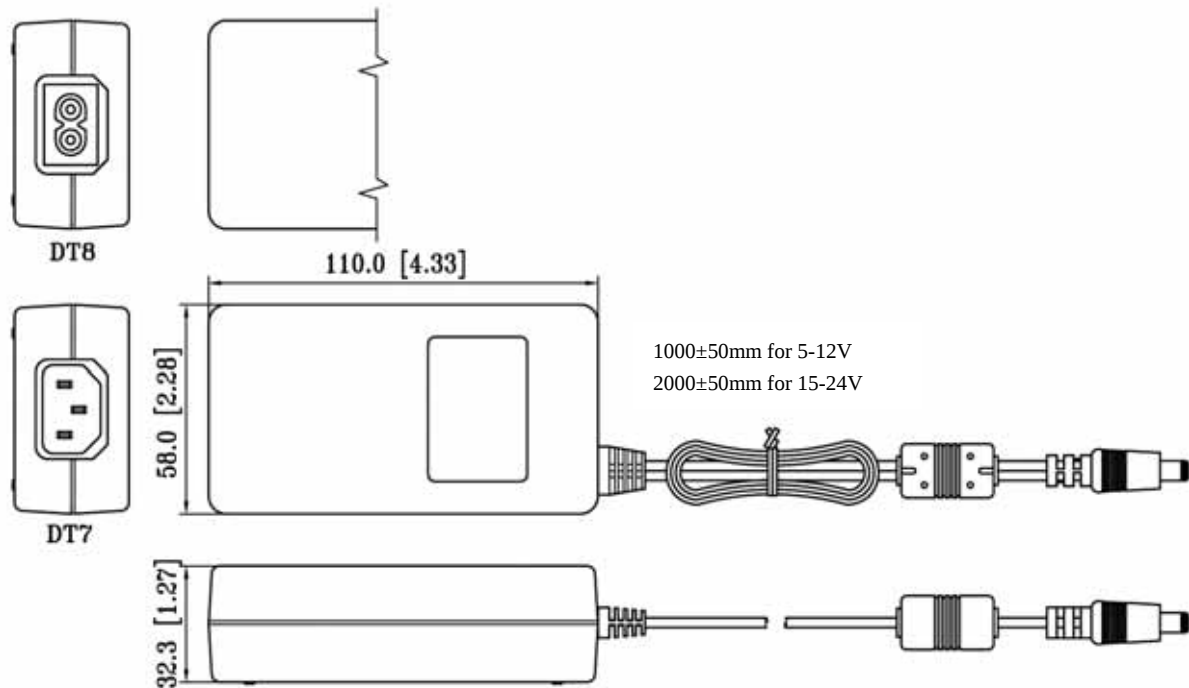
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEMG24-S050400-7	IEC320-C14(DT7)	5.0Vdc	4.0A
HEMG24-S050400-8	IEC320-C8(DT8)	5.0Vdc	4.0A
HEMG24-S075300-7	IEC320-C14(DT7)	7.5Vdc	3.0A
HEMG24-S075300-8	IEC320-C8(DT8)	7.5Vdc	3.0A
HEMG24-S120200-7	IEC320-C14(DT7)	12.0Vdc	2.0A
HEMG24-S120200-8	IEC320-C8(DT8)	12.0Vdc	2.0A
HEMG24-S150160-7	IEC320-C14(DT7)	15.0Vdc	1.6A
HEMG24-S150160-8	IEC320-C8(DT8)	15.0Vdc	1.6A
HEMG24-S240100-7	IEC320-C14(DT7)	24.0Vdc	1.0A
HEMG24-S240100-8	IEC320-C8(DT8)	24.0Vdc	1.0A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 241.0g (8.5 Oz.)





UNIVERSAL INPUT AC-DC MEDICAL & ITE APPLICATION EXTERNAL DESKTOP SWITCHING ADAPTER 40 WATTS GREEN POWER SINGLE OUTPUT HEMG40 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- MEET MEDICAL STANDARDS IEC60601-1 & ITE STANDARDS IEC60950-1
- EMI MEET EN 55011 & EN55022 / FCC CLASS B
- NO LOAD POWER CONSUMPTION <0.3W
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C14(DT7) / 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: 7.5Arms (63.5Apk) at 230Vac.
Input Current: Typical 0.58A at 115Vac/ 0.337A at 230Vac.
Dielectric Withstand: Meet IEC60601-1 & IEC60950-1.
EMI: Meet EN55011 & EN55022 / FCC Class B.
Hold-up Time: Typical 17mS at 115Vac.
 Typical 88mS at 230Vac.
Earth Leakage Current (Class I) : Less than 0.3 mA.
Touch Leakage Current (Class I & II): Less than 0.1mA.
No Load Power: Less than 0.3W at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 40Watts.
Output Connector & Cord: Optional.
Line Regulation: Typical 0.1%.
Load Regulation: Typical $\pm 1.0\%$.
Total Regulation: Typical $\pm 2.0\%$.
Noise & Ripple: 1.0% peak to peak.
OVP: Built-in by latch circuit.
Adjustability: Factory set.
Over Current Protection (OCP):
 Fully protected against output overload and short circuit.
 The PSU will shut down after OCP is activated.
 Consult the factory for OCP setting.

GENERAL SPECIFICATION

Efficiency: Typical 88%. (various with the output voltage)
Switching Frequency: Typical 65KHz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in less than 0.3mS following a 250% load change.
Safety Standard: Meet Medical IEC60601-1 & ITE IEC60950-1, Class I for DT7(C14)
Operating Temperature: 0°C to +40°C.
Storage Temperature: -20 to +85°C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic enclosure case.
Power Density: 3.19Watts. / Cubic inch.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.
 (2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm\%$).
 (3) The exact obtainable load regulation depends upon the output cord selected and load current.
 (4) Due to requests in market and advances in technology, specifications subject to change without notice.



In application.

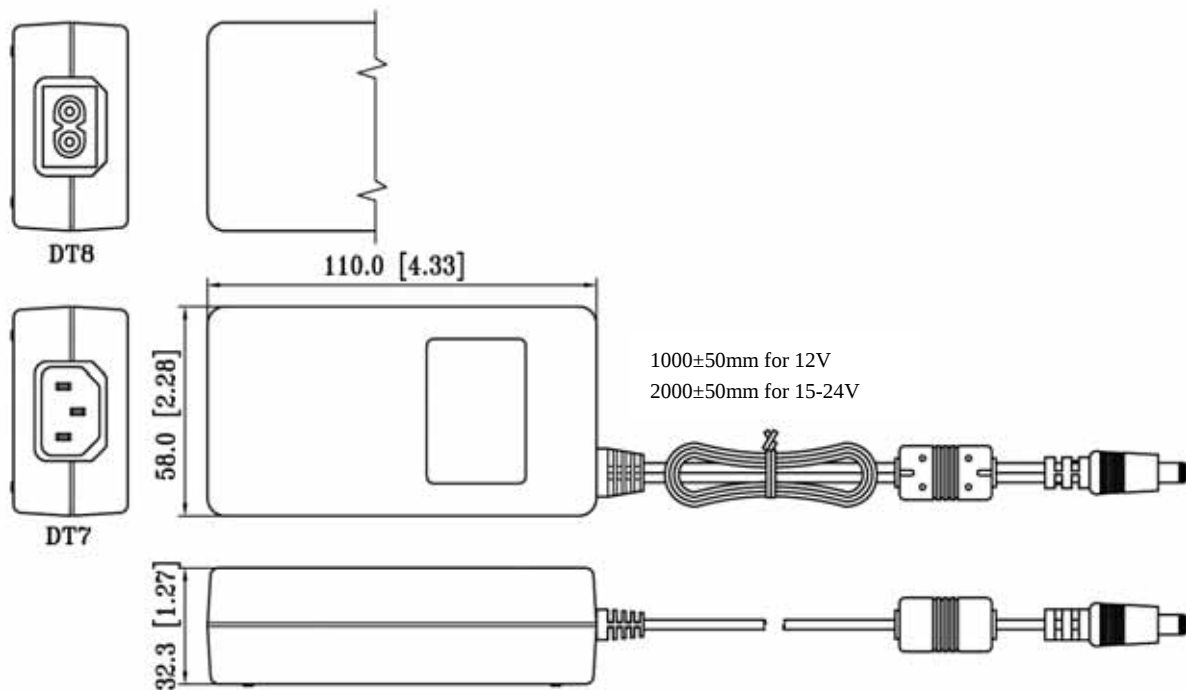
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEMG40-S120334-7	IEC320-C14(DT7)	12.0Vdc	3.34A
HEMG40-S120334-8	IEC320-C8(DT8)	12.0Vdc	3.34A
HEMG40-S150266-7	IEC320-C14(DT7)	15.0Vdc	2.66A
HEMG40-S150266-8	IEC320-C8(DT8)	15.0Vdc	2.66A
HEMG40-S240166-7	IEC320-C14(DT7)	24.0Vdc	1.66A
HEMG40-S240166-8	IEC320-C8(DT8)	24.0Vdc	1.66A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 246.5g(8.70Oz)





UNIVERSAL INPUT AC-DC MEDICAL & ITE APPLICATION EXTERNAL DESKTOP SWITCHING ADAPTER 48-50 WATTS GREEN POWER SINGLE OUTPUT HEMG49 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- MEET MEDICAL STANDARDS IEC60601-1 & ITE STANDARDS IEC60950-1
- EMI MEET EN 55011 & EN55022 / FCC CLASS B
- NO LOAD POWER CONSUMPTION <0.3 W
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C14(DT7) /
 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: 12Arms (52Apk) at 230Vac.
Input Current: Typical 0.91A at 115Vac/ 0.57A at 230Vac.
Dielectric Withstand: Meet IEC60601-1 & IEC60950-1.
EMI: Meet EN55011 & EN55022 / FCC Class B.
Hold-up Time: Typical 12mS at 115Vac.
 Typical 70mS at 230Vac.
Over Temp. Protection: Optional (NTC circuit).
Earth Leakage Current (Class I): Less than 0.3 mA.
Touch Leakage Current (Class I & II): Less than 0.1mA.
No Load Power: Less than 0.3W at 230Vac

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 48-50Watts.
Output Connector & Cord: Optional.
Line Regulation: Typical 0.1%.
Load Regulation: Typical ± 1.5 -3.0%.
Noise & Ripple: 1.0% peak to peak.
OVP: Built-in by latch circuit.
Adjustability: Factory set.
Over Current Protection (OCP):
 Fully protected against output overload and short circuit.
 The PSU will shut down after OCP is activated.
 Consult the factory for OCP setting.

GENERAL SPECIFICATION

Efficiency: Typical 87%-88% (various with the output voltage)
Switching Frequency: Typical 65KHz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in less than 5.5mS following a 50% load change.
Safety Standard: Meet Medical IEC60601-1 & ITE IEC60950-1, Class I for DT7(C14) or Class II for DT8(C8).
Operating Temperature: 0°C to +40°C.
Storage Temperature: -20 to +85°C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic enclosure case.
Power Density: 3.14-3.27Watts. / Cubic inch.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm$ %).

(3) The exact obtainable load regulation depends upon the output cord selected and load current.

(4) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

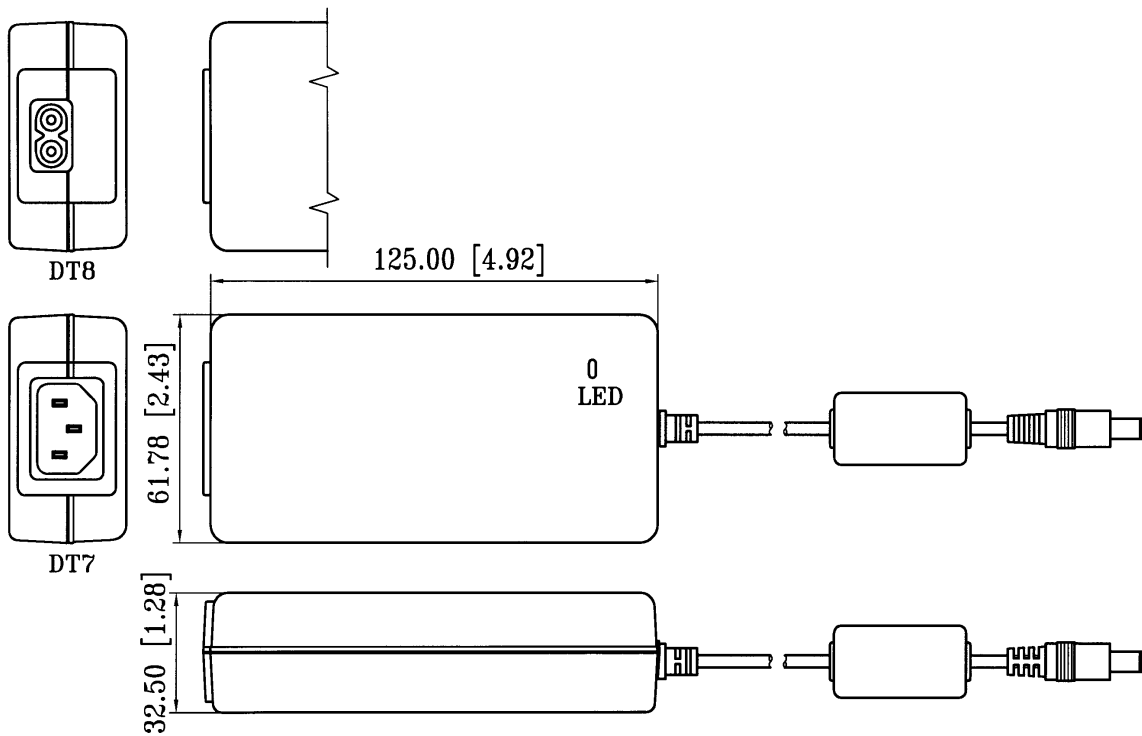
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEMG49-S120400-7	IEC320-C14(DT7)	12.0Vdc	4.0A
HEMG49-S120400-8	IEC320-C8(DT8)	12.0Vdc	4.0A
HEMG49-S150330-7	IEC320-C14(DT7)	15.0Vdc	3.3A
HEMG49-S150330-8	IEC320-C8(DT8)	15.0Vdc	3.3A
HEMG49-S240210-7	IEC320-C14(DT7)	24.0Vdc	2.1A
HEMG49-S240210-8	IEC320-C8(DT8)	24.0Vdc	2.1A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 373.0g (13.2 Oz.)





UNIVERSAL INPUT HARMONIC CORRECTION (PFC) AC-DC MEDICAL & ITE APPLICATION EXTERNAL DESKTOP SWITCHING ADAPTER 120-150 WATTS GREEN POWER SINGLE OUTPUT HEMP150G SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- MEET MEDICAL STANDARDS IEC60601-1 & ITE STANDARDS IEC60950-1
- EMI MEET EN55011 & EN55022 / FCC CLASS B
- NO LOAD POWER CONSUMPTION < 0.5W
- MEET UNIVERSAL SAFETY STANDARDS
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: 3 pole AC inlet IEC320-C14(DT7)/
 3 pole AC inlet IEC320-C6(DT7L)/
 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: 7.2Arms at 230Vac 50Hz.
Input Current: Typical 1.2-1.4A at 115Vac
 Typical 0.6-0.7A at 230Vac.
Dielectric Withstand: Meet IEC60601-1 & IEC60950-1.
EMI: Meet EN55011 & EN55022 FCC Class B.
Hold-up Time: Typical 26.4-51.2mS at 115Vac
 Typical 44.8-60.0mS at 230Vac.
Power Factor & Harmonic Correction:
 Meet IEC 61000-3-2, PF typical 0.99 at full load.
Earth Leakage Current: Less than 0.3mA.
No Load Power: Less than 0.5W at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 120-150 Watts.
Output Connector: Optional.
Line Regulation: Typical $\pm 0.1\%$.
Load Regulation: Typical $\pm 2\%$.
Noise & Ripple: Typical 1% peak to peak.
OVP: Built-in. (Latch)
Adjustability: Not available.
Over Temp. Protection (OTP): Installed.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 110-135% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 87-90% (various with output voltage).
Switching Frequency: 40-65 KHz.
Circuit Topology: Fixed Flyback Circuit.
Transient Response: Output voltage returns in less than
 1mS following a 25% load change.
Safety Standard: Meet Medical IEC60601-1 &
 ITE IEC60950-1 Class I or II.

Operating Temperature: 0 to +40°C.
Storage Temperature: -20 to +85°C.
Cooling: Free air convection.
Construction: Impact resistant plastic enclosure case.
Power Density: 3.5-4.37 Watts/Cubic inch.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage indicate the change in output voltage as the load varied from half load to full load($\pm\%$)

(3) The exact obtainable load regulation depends upon the output cord selected and load current.

(4) Due to requests in market and advances in technology, specifications subject to change without notice



For the detail of safety approval, please consult the factory.

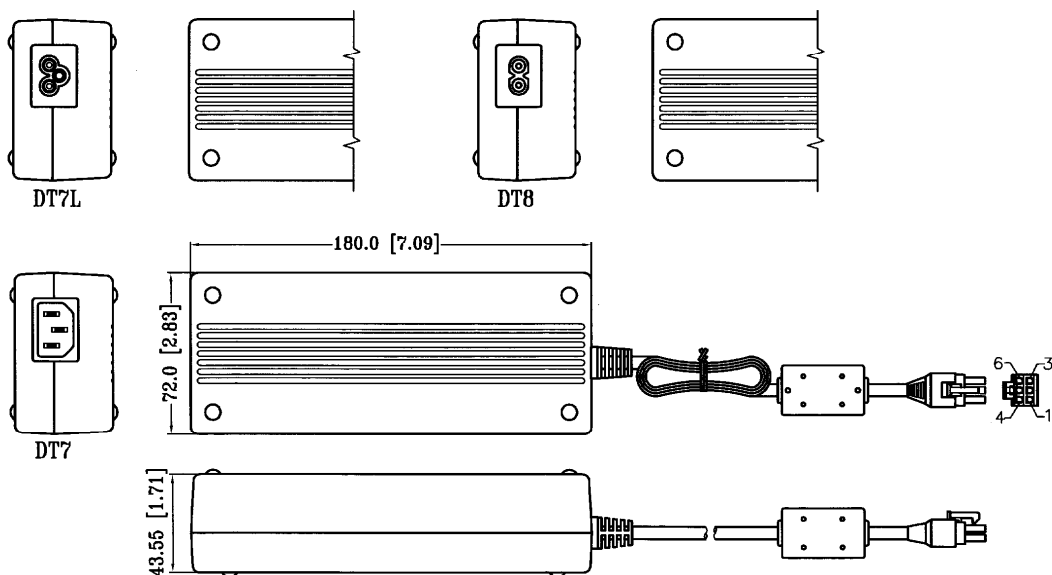
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEMP150G-S120100-7	IEC320-C14(DT7)	12Vdc	10.0A
HEMP150G-S120100-7L	IEC320-C6(DT7L)	12Vdc	10.0A
HEMP150G-S120100-8	IEC320-C8(DT8)	12Vdc	10.0A
HEMP150G-S150080-7	IEC320-C14(DT7)	15Vdc	8.0A
HEMP150G-S150080-7L	IEC320-C6(DT7L)	15Vdc	8.0A
HEMP150G-S150080-8	IEC320-C8(DT8)	15Vdc	8.0A
HEMP150G-S240060-7	IEC320-C14(DT7)	24Vdc	6.0A
HEMP150G-S240060-7L	IEC320-C6(DT7L)	24Vdc	6.0A
HEMP150G-S240060-8	IEC320-C8(DT8)	24Vdc	6.0A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 798g (28.15Oz.)





UNIVERSAL INPUT HARMONIC CORRECTION (PFC) AC-DC MEDICAL & ITE APPLICATION EXTERNAL DESKTOP SWITCHING ADAPTER 200-250 WATTS GREEN POWER SINGLE OUTPUT HEMP250G SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- NO LOAD POWER CONSUMPTION <0.5W
- MEET MEDICAL STANDARDS IEC60601-1 & ITE STANDARDS IEC60950-1
- EMI MEET EN55011 & EN55022 / FCC CLASS B
- MEET UNIVERSAL SAFETY STANDARDS
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: 3 pole AC inlet IEC320-C14(DT7)
Input Frequency: 47-63Hz.
Inrush Current: 12.5Arms at 230Vac
Input Current: Typical 2.4A at 115Vac
Typical 1.3A at 230Vac
Dielectric Withstand: Meet IEC60601-1 & IEC60950-1.
EMI: Meet EN55011 & EN55022 FCC Class B.
Hold-up Time: Typical 20mS at 115Vac and 230Vac.
Power Factor & Harmonic Correction:
Meet IEC 61000-3-2, PF typical 0.96-0.99 at full load.
Over Temp. Protection: Installed by NTC.
Earth Leakage Current: Less than 0.3mA.
No Load Power: Less than 0.5W at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: 200-250 Watts.
Output Connector: Optional.
Line Regulation: Typical $\pm 1\%$.
Load Regulation: Typical $\pm 3\%$.
Noise & Ripple: Typical 1% peak to peak.
OVP: Built-in. (Latch)
Adjustability: Not available.
Over Temp. Protection (OTP): Installed.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 110-130% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 89% (various with output voltage).
Switching Frequency: 85-100KHz
Circuit Topology: Half-Bridge ZVS Circuit.
Transient Response: Output voltage returns in less than
1mS following a 25% load change.
Safety Standard: Meet Medical IEC60601-1 &
ITE IEC60950-1 Class I.

Operating Temperature: 0 to +40°C.
Storage Temperature: -20 to +85°C.
Cooling: Free air convection.
Construction: Impact resistant plastic enclosure case.
Power Density: 3.78Watt/Cubic Inch.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage indicate the change in output voltage as the load varied from half load to full load($\pm\%$)

(3) The exact obtainable load regulation depends upon the output cord selected and load current.

(4) Due to requests in market and advances in technology, specifications subject to change without notice



For the details of safety approval, please consult the factory

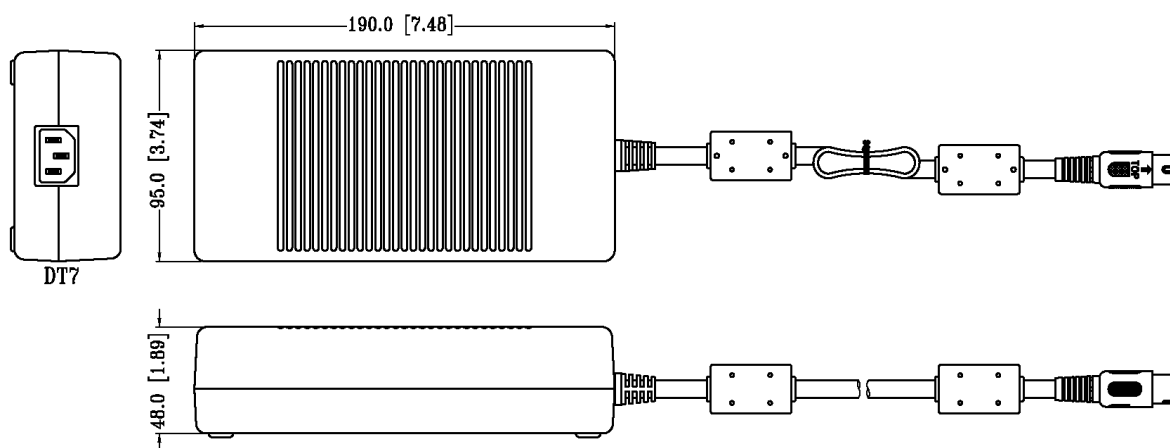
OUTPUT VOLTAGE/CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEMP250G-S120166-7	IEC320-C14(DT7)	12Vdc	16.6A
HEMP250G-S240104-7	IEC320-C14(DT7)	24Vdc	10.4A
HEMP250G-S480052-7	IEC320-C14(DT7)	48Vdc	5.2A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 1216.5g (42.91Oz)





UNIVERSAL INPUT AC-DC MEDICAL APPLICATION EXTERNAL DESKTOP SWITCHING ADAPTER 64-72 WATTS GREEN POWER SINGLE OUTPUT HEMG75 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- 3 POLE/2 POLE AC INLET IEC320-C14/DT7 / 2 pole AC inlet IEC320-C8(DT8).
- MEET MEDICAL STANDARDS IEC60601
- NO LOAD POWER CONSUMPTION <0.5W
- EMI MEET EN 55011 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C14(DT7) / 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: Typical 57.6A at 230Vac.
Input Current: Typical 1.2A at 115Vac, 0.59A at 230Vac.
Dielectric Withstand: Meet IEC60601-1.
EMI: Meet EN55011 FCC Class B.
Hold-up Time: Typical 15.7mS at 115Vac, Typical 82.6mS at 230Vac.
Over Temp. Protection: Available.
Leakage Current: Less than 100uA.
No Load Power: Less than 0.5W at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 64-72 Watts.
Output Connector & Cord: Optional.
Line Regulation: Typical 1%.
Load Regulation: Typical $\pm 3\%$.
Noise & Ripple: Typical 1% peak to peak.
OVP: Built-in by latch circuit.
Adjustability: Factory set.
Over Current Protection (OCP):
 Fully protected against output overload and short circuit.
 OLP set at about 125-150% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 84-85%. (various with output voltage)
Switching Frequency: Typical 60KHz.
Circuit Topology: Fixed Frequency flyback circuit.
Transient Response: Output voltage returns in less than 1mS following a 25% load change.
Safety Standard: Medical standards IEC60601-1/ EN60601-1/ UL60601-1.
Operating Temperature: 0 to +40°C.
Storage Temperature: -20 to +85 °C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic enclosure case.
Power Density: 4.12-4.7 Watts. / Cubic Inch.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.
 (2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm\%$).
 (3) The exact obtainable load regulation depends upon the output cord selected and load current.
 (4) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

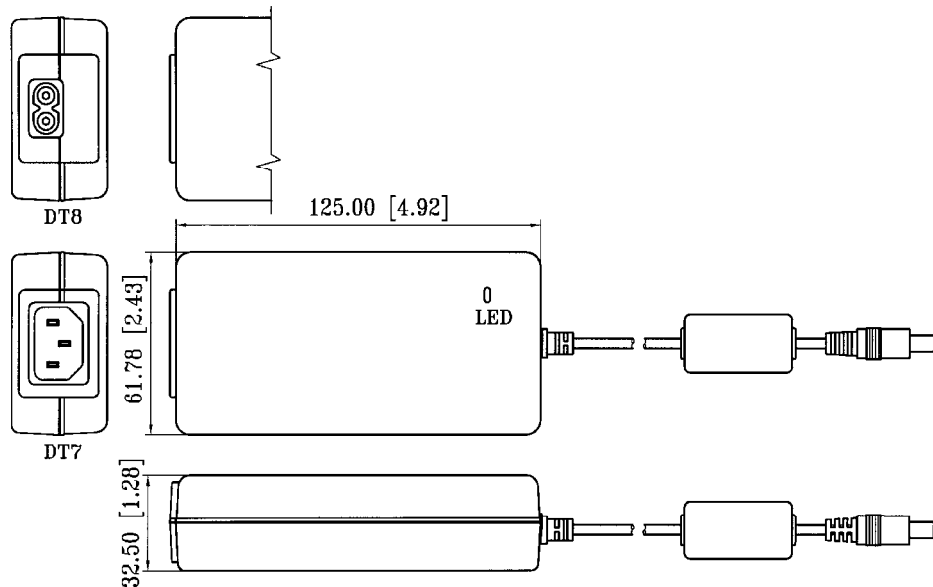
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEMG75-120530-7	IEC320-C14(DT7)	12.0Vdc	5.3A
HEMG75-120530-8	IEC320-C8(DT8)	12.0Vdc	5.3A
HEMG75-150470-7	IEC320-C14(DT7)	15.0Vdc	4.7A
HEMG75-150470-8	IEC320-C8(DT8)	15.0Vdc	4.7A
HEMG75-180400-7	IEC320-C14(DT7)	18.0Vdc	4.0A
HEMG75-180400-8	IEC320-C8(DT8)	18.0Vdc	4.0A
HEMG75-240280-7	IEC320-C14(DT7)	24.0Vdc	2.8A
HEMG75-240280-8	IEC320-C8(DT8)	24.0Vdc	2.8A
HEMG75-480150-7	IEC320-C14(DT7)	48.0Vdc	1.5A
HEMG75-480150-8	IEC320-C8(DT8)	48.0Vdc	1.5A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 373.0g (13.2 Oz.)



• **HiTRON**

UNIVERSAL INPUT HARMONIC CORRECTION (PFC) AC-DC MEDICAL APPLICATION EXTERNAL DESKTOP SWITCHING ADAPTER 78-100 WATTS GREEN POWER SINGLE OUTPUT HEMP100G SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- NO LOAD POWER CONSUMPTION<0.5W
- MEET MEDICAL STANDARDS IEC60601-1
- EMI MEET EN55011 / FCC CLASS B
- MEET UNIVERSAL SAFETY STANDARDS
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: 3 pole AC inlet IEC320-C6(DT7L) /
2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: 7.2Arms at 230Vac 50Hz.
Input Current: Typical 0.976A at 115Vac
Typical 0.496A at 230Vac
Dielectric Withstand: Meet IEC60601-1.
EMI: Meet EN55011 FCC Class B.
Hold-up Time: Typical 22mS at 115Vac/ 43mS at 230Vac.
Power Factor & Harmonic Correction:
Meet IEC 61000-3-2, PF typical 0.98 at full load.
Earth Leakage Current: Less than 0.13mA.
No Load Power: Typical 0.37W at 132Vac,
Typical 0.50W at 264Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 78-100 Watts.
Output Connector: Optional.
Line Regulation: Typical 0.3 %.
Load Regulation: Typical $\pm 2\%$.
Noise & Ripple: Typical 1% peak to peak.
OVP: Built-in. (Latch)
Adjustability: Not available.
Over Temp. Protection (OTP): Installed.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 110-135% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 88-90%. (various with output voltage)
Switching Frequency: 40-65 KHz.
Circuit Topology: Fixed Flyback circuit.
Transient Response: Output voltage returns in less than
1mS following a 25% load change.
Safety Standard: Meet Medical standards UL60601-1 /
EN60601-1 Class I or II.

Operating Temperature: 0 to +40°C.
(various with output voltage)
Storage Temperature: -20 to +85°C.
Cooling: Free air convection.
Construction: Impact resistant plastic enclosure case.
Power Density: 4.24-5.35 Watts/Cubic inch.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm\%$).

(3) The exact obtainable load regulation depends upon the output cord selected and load current.

(4) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

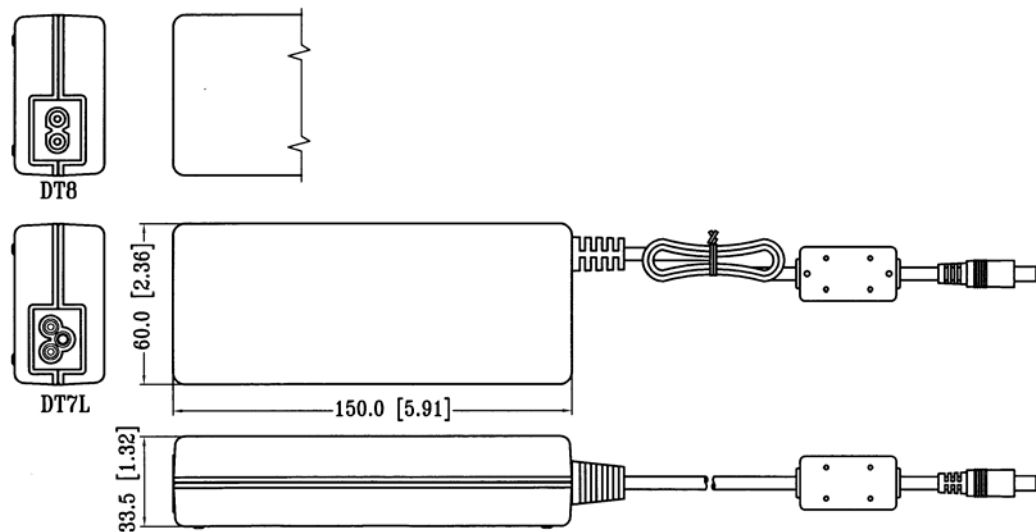
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEMP100G-S120650-7L	IEC320-C6(DT7L)	12Vdc	6.5A
HEMP100G-S120650-8	IEC320-C8(DT8)	12Vdc	6.5A
HEMP100G-S150620-7L	IEC320-C6(DT7L)	15Vdc	6.2A
HEMP100G-S150620-8	IEC320-C8(DT8)	15Vdc	6.2A
HEMP100G-S190530-7L	IEC320-C6(DT7L)	19Vdc	5.3A
HEMP100G-S190530-8	IEC320-C8(DT8)	19Vdc	5.3A
HEMP100G-S240420-7L	IEC320-C6(DT7L)	24Vdc	4.2A
HEMP100G-S240420-8	IEC320-C8(DT8)	24Vdc	4.2A
HEMP100G-S360270-7L	IEC320-C6(DT7L)	36Vdc	2.7A
HEMP100G-S360270-8	IEC320-C8(DT8)	36Vdc	2.7A
HEMP100G-S480200-7L	IEC320-C6(DT7L)	48Vdc	2.0A
HEMP100G-S480200-8	IEC320-C8(DT8)	48Vdc	2.0A
HEMP100G-S580170-7L	IEC320-C6(DT7L)	58Vdc	1.7A
HEMP100G-S580170-8	IEC320-C8(DT8)	58Vdc	1.7A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 400.0g (14.18 Oz.)





UNIVERSAL INPUT AC-DC EXTERNAL WALL-MOUNTED & DESKTOP SWITCHING ADAPTER 12 WATTS GREEN POWER SINGLE OUTPUT HEG12 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- DIVERSE AC PLUG AVAILABLE
- MEET UNIVERSAL SAFETY STANDARDS
- NO LOAD POWER CONSUMPTION < 0.3W
- EMI MEET CISPR EN 55022/ FCC CLASS B
- PASS LPS & CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 2 blade US plug(WM1)
 2 pole European plug (WM3)
 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: Typical 3.87Arms at 230Vac.
Input Current: Typical 0.22A at 115Vac, 0.14A at 230Vac.
Dielectric Withstand: Meet IEC60950-1.
EMI: Meet CISPR EN55022 / FCC Class B.
Hold-up Time: Typical 15.2mS at 115Vac,
 Typical 80.8mS at 230Vac.
Leakage Current: Typical 0.22mA.
No load power: Less than 0.3W at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 12Watt.
Output Connector: Optional.
Line Regulation: Typical 0.1%.
Load Regulation: Typical $\pm 1-3\%$.
Noise & Ripple: Typical 1% peak to peak.
OVP: Built-in by Zener circuit.
Adjustability: Factory set.
Over Load Protection (OLP):
 Fully protected against output overload and short circuit.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 75-82%.(various with output voltage)
Switching Frequency: Typical 55-67KHz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Peak deviation is 180mV,
 Recovery time is 200 μ S at 50% step load.
Safety Standard: Meet EN60950-1/ UL60950-1 Class II.
Operating Temperature: 0 to +40 °C.
Storage Temperature: -20 to +85 °C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic enclosure case.
Power Density: 2.3Watts. / Cubic Inch.

Note: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

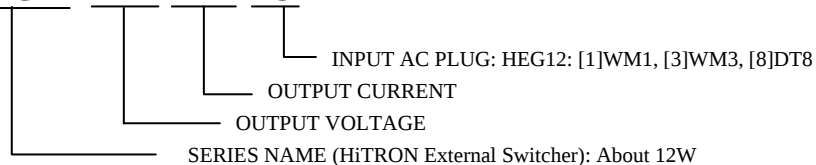
(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm\%$).

(3) The exact obtainable load regulation depends upon the output cord selected and load current.

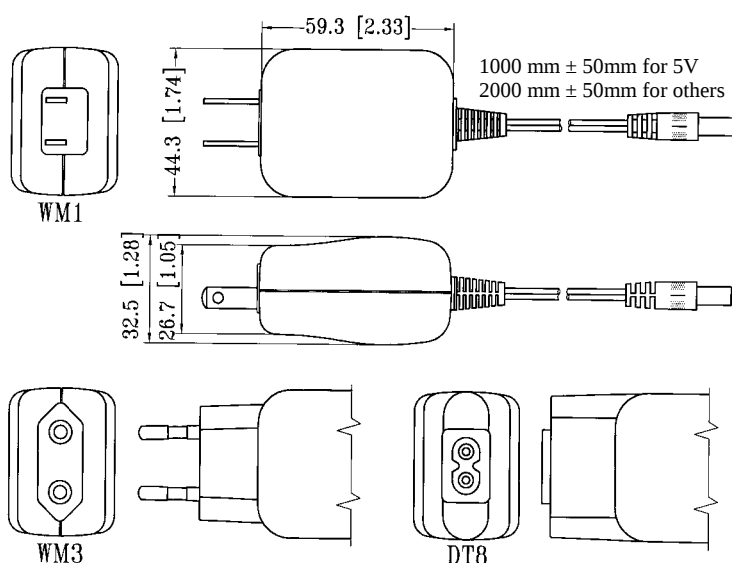
(4) Due to requests in market and advances in technology, specifications subject to change without notice.



In application.

MODEL NO. DESCRIPTION: HEG12 - XXX YYY - S**OUTPUT VOLTAGE / CURRENT RATINGS CHART****SINGLE OUTPUT** *(Model No. for example)*

MODEL NO.	AC PLUG	O/P VOLTAGE	O/P CURRENT	FORMAT
HEG12-050240-1	US type(WM1)	5.0Vdc	2.40A	Wall-mounted
HEG12-050240-3	Euro type(WM3)	5.0Vdc	2.40A	Wall-mounted
HEG12-050240-8	IEC320-C8(DT8)	5.0Vdc	2.40A	Desktop
HEG12-090130-1	US type(WM1)	9.0Vdc	1.30A	Wall-mounted
HEG12-090130-3	Euro type(WM3)	9.0Vdc	1.30A	Wall-mounted
HEG12-090130-8	IEC320-C8(DT8)	9.0Vdc	1.30A	Desktop
HEG12-120100-1	US type(WM1)	12.0Vdc	1.00A	Wall-mounted
HEG12-120100-3	Euro type(WM3)	12.0Vdc	1.00A	Wall-mounted
HEG12-120100-8	IEC320-C8(DT8)	12.0Vdc	1.00A	Desktop
HEG12-150080-1	US type(WM1)	15.0Vdc	0.80A	Wall-mounted
HEG12-150080-3	Euro type(WM3)	15.0Vdc	0.80A	Wall-mounted
HEG12-150080-8	IEC320-C8(DT8)	15.0Vdc	0.80A	Desktop
HEG12-240050-1	US type(WM1)	24.0Vdc	0.50A	Wall-mounted
HEG12-240050-3	Euro type(WM3)	24.0Vdc	0.50A	Wall-mounted
HEG12-240050-8	IEC320-C8(DT8)	24.0Vdc	0.50A	Desktop
HEG12-480250-1	US type(WM1)	48.0Vdc	0.25A	Wall-mounted
HEG12-480250-3	Euro type(WM3)	48.0Vdc	0.25A	Wall-mounted
HEG12-480250-8	IEC320-C8(DT8)	48.0Vdc	0.25A	Desktop

MECHANICAL DIMENSIONS: MM [INCHES]**WEIGHT:** 113g (4.0 Oz.)



UNIVERSAL INPUT AC-DC EXTERNAL WALL-MOUNTED SWITCHING ADAPTER 16-24 WATTS GREEN POWER SINGLE OUTPUT HEG24 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- DIVERSE WALL-MOUNTED AC PLUGS
- NO LOAD POWER CONSUMPTION < 0.3W
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET EN 55022 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: WM1/WM2/WM3/WM5/WM6.
Input Frequency: 47-63Hz.
Inrush Current: Typical 6.11Arms at 230Vac.
Input Current: Typical 0.3A at 115Vac.
 Typical 0.17A at 230Vac.
Dielectric Withstand: Meet IEC60950-1
EMI: Meet EN 55022 / FCC Class B.
Hold-up Time: Typical 18.8mS at 115Vac,
 Typical 95.2mS at 230Vac.
Leakage Current: Less than 0.16mA.
No Load Power: Typical 0.19W at 132Vac,
 Typical 0.25W at 264Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 16-24 Watts.
Output Connector & Cord: Optional.
Line Regulation: Typical 0.3%.
Load Regulation: Typical $\pm 3.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 125-150% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 80-85%. (various with output voltage)
Switching Frequency: Approximate 65K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in less than
 1mS following a 25% load change.
Safety Standard: Meet UL60950-1/EN60950-1 Class I or II.
Power Density: 1.5-2.17 Watts / Cubic inch.

Operating Temperature: 0 to +40°C.
Storage Temperature: -20 to +85°C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic
 enclosure case.
Wall-mounted Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

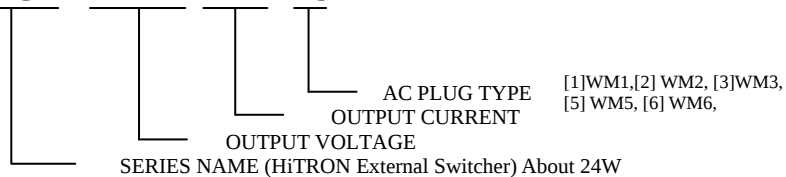
(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load is varied from half load to full load (unit $\pm\%$).
 For the multi-output, the main output remains 50% load and other aux. output remains 20% load.

(3) The exact obtainable load regulation depends upon the output load current & cord selected.

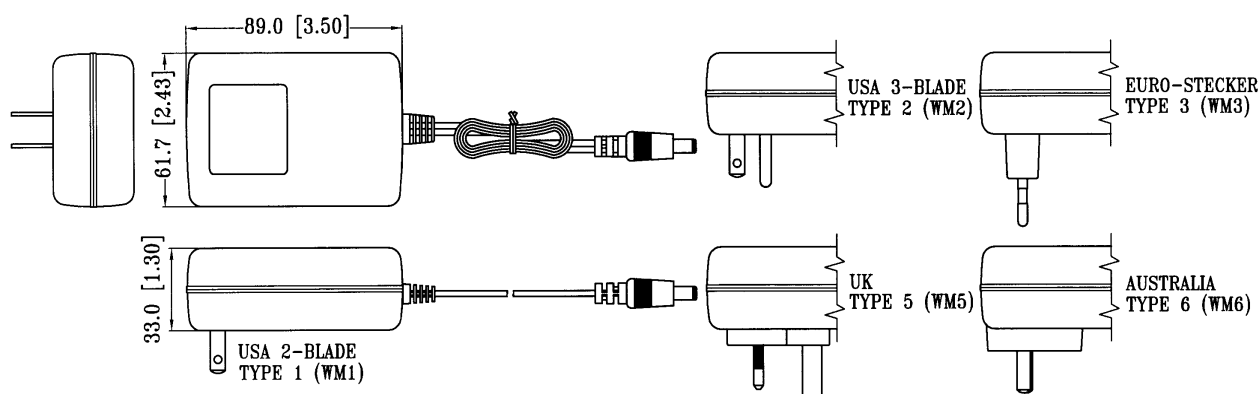
(4) Due to requests in market and advances in technology, specifications subject to change without notice.



In application.

MODEL NO. DESCRIPTION: HEG24 - X X X YYY - S**OUTPUT VOLTAGE / CURRENT RATINGS CHART****SINGLE OUTPUT** *(Model No. for example)*

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEG24-033500-1	US 2-blade type(WM1)	3.3Vdc	5.00A
HEG24-033500-3	Euro type(WM3)	3.3Vdc	5.00A
HEG24-050400-2	US 3-blade type(WM2)	5.0Vdc	4.00A
HEG24-050400-3	Euro type(WM3)	5.0Vdc	4.00A
HEG24-090270-3	Euro type(WM3)	9.0Vdc	2.70A
HEG24-120200-5	U.K type(WM5)	12.0Vdc	2.00A
HEG24-150160-3	Euro type(WM3)	15.0Vdc	1.60A
HEG24-150160-6	Australian type(WM6)	15.0Vdc	1.60A
HEG24-180133-1	US 2-blade type(WM1)	18.0Vdc	1.33A
HEG24-230104-2	Euro type(WM3)	23.0Vdc	1.04A
HEG24-240100-1	US 2-blade type(WM1)	24.0Vdc	1.00A
HEG24-240100-3	Euro type(WM3)	24.0Vdc	1.00A
HEG24-360067-6	Australian type(WM6)	36.0Vdc	0.67A

MECHANICAL DIMENSIONS: MM [INCHES]**WEIGHT: 240.0g (8.5 Oz.)**



UNIVERSAL INPUT AC-DC EXTERNAL DESKTOP SWITCHING ADAPTER 42 WATTS GREEN POWER SINGLE OUTPUT HEG42 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- DESKTOP IEC320-C14/C6/C8 AC INLET
- NO LOAD POWER CONSUMPTION < 0.3W
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET EN55022 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C14(DT7) /
 3 pole AC inlet IEC320-C6(DT7L) /
 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: Typical 8.0Arms at 230Vac.
Input Current: Typical 0.63A at 115Vac, 0.35A at 230Vac.
Dielectric Withstand: Meet IEC60950-1.
EMI: Meet EN55022 / FCC Class B.
Hold-up Time: Typical 15.6mS at 115Vac,
 Typical 89.6mS at 230Vac.
Leakage Current: Less than 0.17mA for class II,
 Less than 0.4mA for class I.
No Load Power: Typical 0.16W at 132Vac,
 Typical 0.26W at 264Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 42-48 Watts.
Output Connector & Cord: Optional.
Line Regulation: Typical 0.5%.
Load Regulation: Typical $\pm 3.0\%$.
Tolerance: Typical $\pm 5\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in, Latch.
Overload Protection:
 Fully protected against output overload or short circuit.
 Typical set at 105-140% at 115Vac.
 Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 87-88%. (various with output voltage)
Switching Frequency: Approximate 59-63KHz.
Circuit Topology: Fixed Frequency flyback circuit.
Transient Response: Output voltage returns in less than
 1mS following a 25% load change.
Safety Standard: Meet UL60950-1/EN60950-1 Class I or II.
Operating Temperature: 0 to +40°C.
Storage Temperature: -20 to +85°C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic case.
Power Density: Typ. 3.3-3.8Watts / Cubic inch.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage indicate the change in output voltage as the load varied from half load to full load($\pm\%$)

(3) The exact obtainable load regulation depends upon the output cord selected and load current.

(4) Due to requests in market and advances in technology, specifications subject to change without notice



For the details of safety approval, please consult the factory.

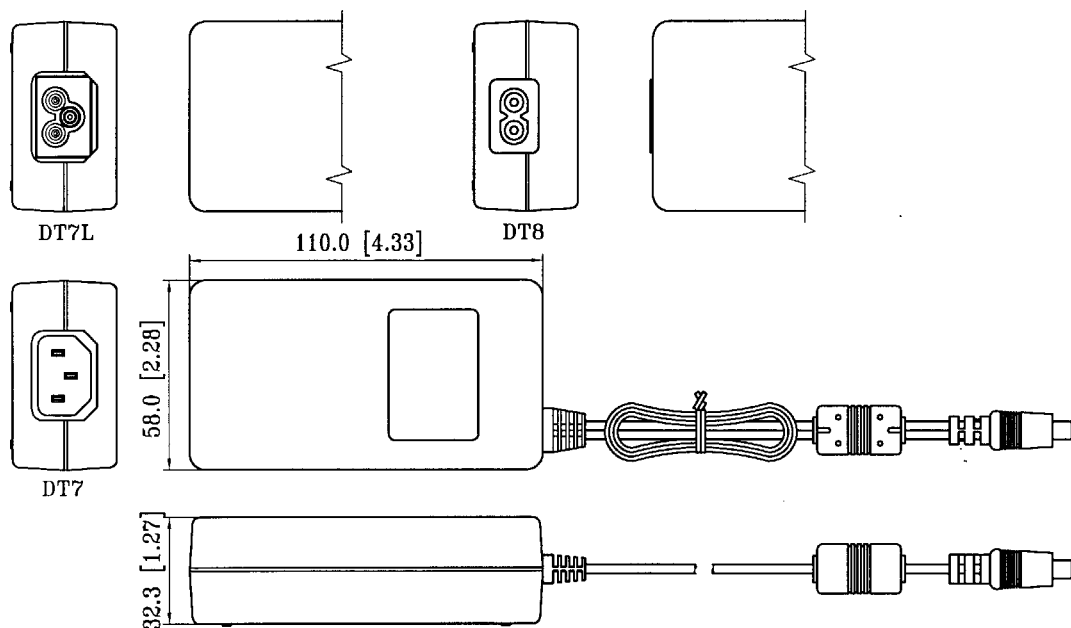
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT *(Model No. for example)*

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEG42-120300-7	IEC320-C14(DT7)	12.0Vdc	3.00A
HEG42-120400-7	IEC320-C14(DT7)	12.0Vdc	4.00A
HEG42-120400-7L	IEC320-C6(DT7L)	12.0Vdc	4.00A
HEG42-120400-8	IEC320-C8(DT8)	12.0Vdc	4.00A
HEG42-150280-7	IEC320-C14(DT7)	15.0Vdc	2.80A
HEG42-150280-7L	IEC320-C6(DT7L)	15.0Vdc	2.80A
HEG42-150280-8	IEC320-C8(DT8)	15.0Vdc	2.80A
HEG42-190220-7	IEC320-C14(DT7)	19.0Vdc	2.20A
HEG42-190220-7L	IEC320-C6(DT7L)	19.0Vdc	2.20A
HEG42-190220-8	IEC320-C8(DT8)	19.0Vdc	2.20A
HEG42-240100-7L	IEC320-C6(DT7L)	24.0Vdc	1.00A
HEG42-240150-7L	IEC320-C6(DT7L)	24.0Vdc	1.50A
HEG42-240200-7L	IEC320-C6(DT7L)	24.0Vdc	2.00A
HEG42-240200-7	IEC320-C14(DT7)	24.0Vdc	2.00A
HEG42-240200-8	IEC320-C8(DT8)	24.0Vdc	2.00A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 320g(11.30Oz)





UNIVERSAL INPUT AC-DC EXTERNAL DESKTOP SWITCHING ADAPTER 60-75 WATTS GREEN POWER SINGLE OUTPUT HEG75 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- DESKTOP IEC320-C6/C8 AC INLET
- MEET UNIVERSAL SAFETY STANDARDS
- NO LOAD POWER CONSUMPTION < 0.5W
- EMI MEET CISPR EN 55022/ FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C6(DT7L) /
 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: Typical 9.9Arms at 230Vac.
Input Current: Typical 1.23A at 115Vac, 0.67A at 230Vac.
Dielectric Withstand: Meet IEC60950-1.
EMI: Meet CISPR EN55022 / FCC Class B.
Hold-up Time: Typical 16.8mS at 115Vac,
 Typical 84.8mS at 230Vac.
Over Temp. Protection: Factory set.
Leakage Current: Less than 0.5mA.
LED Indicator: Optional.
No Load Power: Less than 0.5W at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 60-75 Watts.
Output Connector: Optional.
Line Regulation: Typical 0.1%.
Load Regulation: Typical $\pm 5.0\%$.
Noise & Ripple: Typical 2% peak to peak.
OVP: Built-in by latch circuit.
Adjustability: Factory set.
Over Current Protection (OCP):
 Fully protected against output overload and short circuit.
 OCP is installed PCT (Peak Current Timer) for large
 peak current. The PSU will shutdown after OCP is
 activated in a certain period. The PSU will hiccup
 if the output is in short circuit.
 Consult the factory for OCP setting.

GENERAL SPECIFICATION

Efficiency: Typical 85-89%.(various with output voltage)
Switching Frequency: Typical 60KHz.
Circuit Topology: Fixed Frequency flyback circuit.
Transient Response: Output voltage returns in less than
 2mS following a 25% load change.
Safety Standard: Meet EN60950-1/ UL60950-1,
 Class I for DT7L and Class II for DT8.

Operating Temp.: 0 to +40 °C.
Storage Temperature: -20 to +85 °C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic
 enclosure case.
Power Density: 5.15-6.5Watts. / Cubic Inch.
Desktop Format.

Note: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm\%$).

(3) The exact obtainable load regulation depends upon the output cord selected and load current.

(4) The typical cord is UL1185 AWG#18 or UL1571 16AWG#. The typical cord length for UL1185/AWG#18 is 2ft and for UL1571 16AWG# is 1M.

(5) The DC COM of output is connected with GND.

(6) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

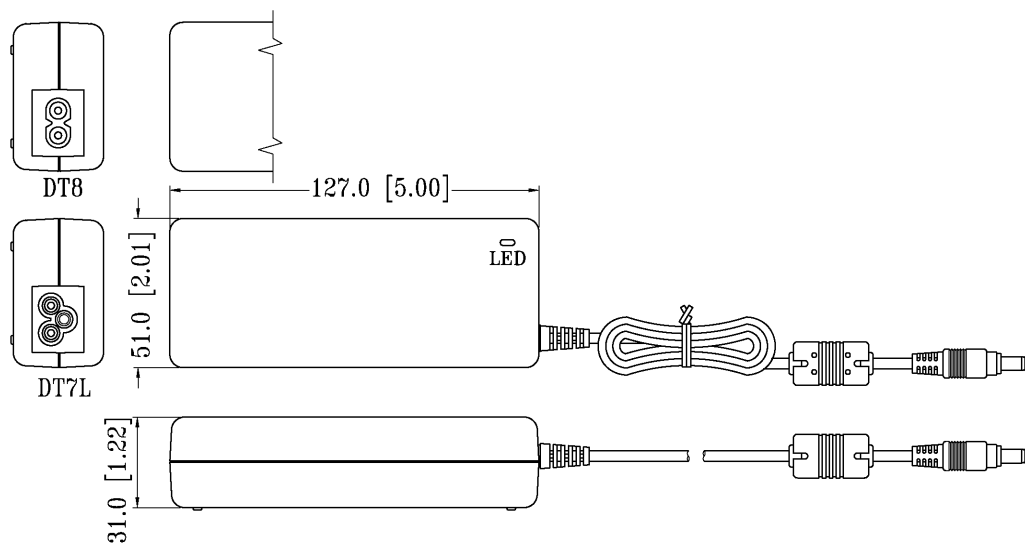
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HEG75-S120500-7L	IEC320-C6(DT7L)	12.0Vdc	5.00A
HEG75-S120500-8	IEC320-C8(DT8)	12.0Vdc	5.00A
HEG75-S120550-7L	IEC320-C6(DT7L)	12.0Vdc	5.50A
HEG75-S120550-8	IEC320-C8(DT8)	12.0Vdc	5.50A
HEG75-S190390-7L	IEC320-C6(DT7L)	19.0Vdc	3.90A
HEG75-S190390-8	IEC320-C8(DT8)	19.0Vdc	3.90A
HEG75-S240250-7L	IEC320-C6(DT7L)	24.0Vdc	2.50A
HEG75-S240250-8	IEC320-C8(DT8)	24.0Vdc	2.50A
HEG75-S240320-7L	IEC320-C6(DT7L)	24.0Vdc	3.20A
HEG75-S240320-8	IEC320-C8(DT8)	24.0Vdc	3.20A
HEG75-S300200-7L	IEC320-C6(DT7L)	30.0Vdc	2.00A
HEG75-S300200-8	IEC320-C8(DT8)	30.0Vdc	2.00A
HEG75-S300250-7L	IEC320-C6(DT7L)	30.0Vdc	2.50A
HEG75-S300250-8	IEC320-C8(DT8)	30.0Vdc	2.50A
HEG75-S360210-7L	IEC320-C6(DT7L)	36.0Vdc	2.10A
HEG75-S360210-8	IEC320-C8(DT8)	36.0Vdc	2.10A
HEG75-S480156-7L	IEC320-C6(DT7L)	48.0Vdc	1.56A
HEG75-S480156-8	IEC320-C8(DT8)	48.0Vdc	1.56A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 324.0g (11.5 Oz.)





**UNIVERSAL INPUT HARMONIC CORRECTION (PFC)
AC-DC EXTERNAL DESKTOP SWITCHING ADAPTER
84-98 WATTS GREEN POWER SINGLE OUTPUT HEPG98 SERIES**



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- DESKTOP IEC320-C6/C8 AC INLET
- NO LOAD POWER CONSUMPTION < 0.5W
- MEET IEC61000-3-2 HARMONIC CORRECTION
- EMI MEET EN55022 / FCC CLASS B
- MEET UNIVERSAL SAFETY STANDARDS

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C6(DT7L) /
2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: Typical 10.6Arms at 230Vac.
Input Current: Typical 0.97A at 115Vac, 0.5A at 230Vac
Dielectric Withstand: Meet IEC60950-1.
EMI: Meet EN55022 / FCC Class B.
Hold-up Time: Typical 15mS at 115Vac, 28mS at 230Vac.
Power Factor & Harmonic Correction:
Meet IEC 61000-3-2, PF typical 0.97 at full load.
Leakage Current: Less than 0.24mA.
No Load Power: Typical 0.29W at 132Vac,
Typical 0.45W at 264Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 84-98 Watts.
Output Connector: Optional.
Line Regulation: Typical 0.2 %.
Load Regulation: Typical $\pm 2.5\%$.
Noise & Ripple: Typical 1% peak to peak.
OVP: Built-in. (Latch)
Over Temp. Protection (OTP): Installed.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 110-135% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 88-90% (various with output voltage).
Switching Frequency: 25-65 KHz.
Circuit Topology: Fixed Flyback Circuit.
Transient Response: Output voltage returns in less than
1mS following a 25% load change.
Safety Standard: Meet UL60950-1/EN60950-1 Class I or II.
Harmonic Current Emission, EN61000-3-2 compliance.
Operating Temperature: 0 to +40°C without derating.
(various with output voltage)
Storage Temperature: -20 to +85°C.
Cooling: Free air convection.
Construction: Impact resistant plastic enclosure case.
Power Density: 4.56-5.32Watts/Cubic inch.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load is varied from half load to full load ($\pm\%$).

(3) The typical cord length is about 1 meter (3.3 ft.), AWG#18 cord for various load conditions.

(4) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

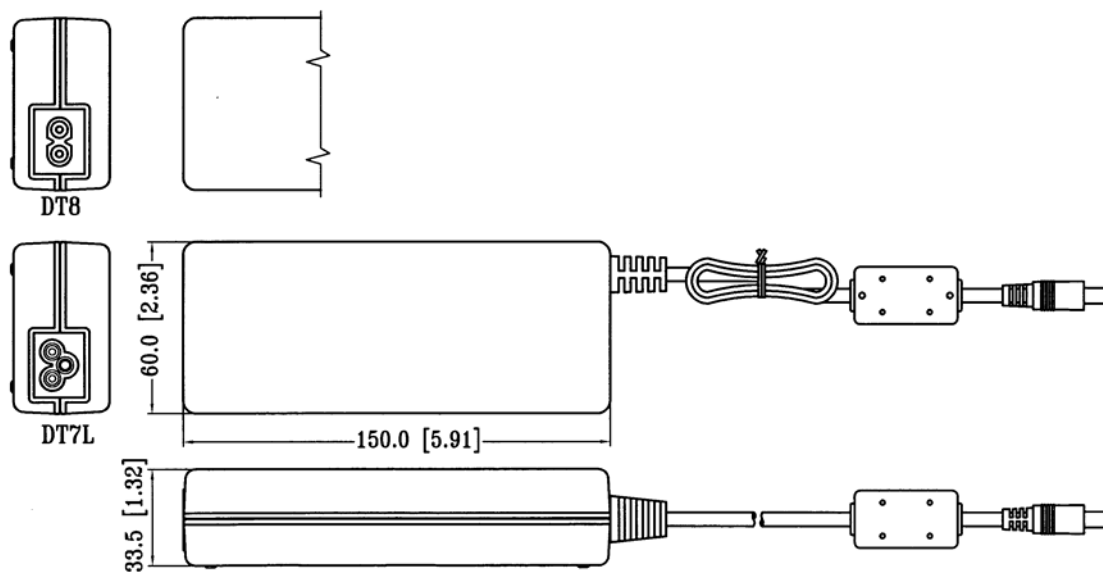
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	AC PLUG	O/P VOLTAGE	O/P CURRENT
HEPG98-S120500-7L	IEC320-C6(DT7L)	12Vdc	5.00A
HEPG98-S120500-8	IEC320-C8(DT8)	12Vdc	5.00A
HEPG98-S120550-7L	IEC320-C6(DT7L)	12Vdc	5.50A
HEPG98-S120550-8	IEC320-C8(DT8)	12Vdc	5.50A
HEPG98-S120600-7L	IEC320-C6(DT7L)	12Vdc	6.00A
HEPG98-S120600-8	IEC320-C8(DT8)	12Vdc	6.00A
HEPG98-S120650-7L	IEC320-C6(DT7L)	12Vdc	6.50A
HEPG98-S120650-8	IEC320-C8(DT8)	12Vdc	6.50A
HEPG98-S120700-7L	IEC320-C6(DT7L)	12Vdc	7.00A
HEPG98-S120700-8	IEC320-C8(DT8)	12Vdc	7.00A
HEPG98-S150620-7L	IEC320-C6(DT7L)	15Vdc	6.20A
HEPG98-S150620-8	IEC320-C8(DT8)	15Vdc	6.20A
HEPG98-S190510-7L	IEC320-C6(DT7L)	19Vdc	5.10A
HEPG98-S190510-8	IEC320-C8(DT8)	19Vdc	5.10A
HEPG98-S240250-7L	IEC320-C6(DT7L)	24Vdc	2.50A
HEPG98-S240250-8	IEC320-C8(DT8)	24Vdc	2.50A
HEPG98-S240300-7L	IEC320-C6(DT7L)	24Vdc	3.00A
HEPG98-S240300-8	IEC320-C8(DT8)	24Vdc	3.00A
HEPG98-S240350-7L	IEC320-C6(DT7L)	24Vdc	3.50A
HEPG98-S240350-8	IEC320-C8(DT8)	24Vdc	3.50A
HEPG98-S240400-7L	IEC320-C6(DT7L)	24Vdc	4.00A
HEPG98-S240400-8	IEC320-C8(DT8)	24Vdc	4.00A
HEPG98-S240410-7L	IEC320-C6(DT7L)	24Vdc	4.10A
HEPG98-S240410-8	IEC320-C8(DT8)	24Vdc	4.10A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 550.0g (19.4 Oz.)





UNIVERSAL INPUT AC-DC EXTERNAL WALL-MOUNTED SWITCHING ADAPTER 20-36 WATTS SINGLE OUTPUT HES25 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- DIVERSE WALL-MOUNTED AC PLUGS
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET EN55022 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: Wall-mounted Format.
 WM1/ WM2 (USA/Japan), WM3(Euro-Stecker).
 WM5 (UK) / WM6 (Australia).
Input Frequency: 47-63Hz.
Inrush Current: Typical 28A at 230Vac.
Input Current: Typical 0.6A at 115Vac, 0.3A at 230Vac.
Dielectric Withstand: Meet IEC60950.
EMI: Meet EN55022 / FCC Class B.
Hold-up Time: Typical 8mS at 115Vac.
 Typical 35mS at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 20-36 Watts.
Output Connector & Cord: Optional.
Line Regulation: Typical 0.1%.
Load Regulation: Typical ± 1.5 -3%.
Noise & Ripple: 1.0% typical peak to peak.
OVP: Built-in, Zener diode clamping.
Adjustability: Factory set.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 125-150% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 71-85%.(various with output voltage)
Switching Frequency: Approximate 70K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in less than
 3mS following a 25% load change.
Safety Standard: Meet UL60950/ EN60950 Class I & II.
Power Density: 1.8-3.2 Watts / Cubic inch.

Operating Temperature: 0 °C to room temperature.
Storage Temperature: -20 to +85°C.
Temperature Coefficient: 0.04% /°C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic
 enclosure case.
Wall-mounted Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

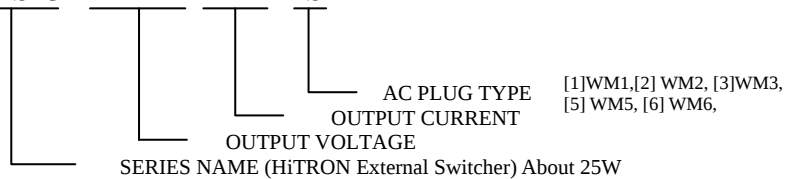
(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm\%$).

(3) The exact obtainable load regulation depends upon the output cord selected and load current. Upper data are for 6 ft. (2 m) cord AWG#18 wires.

(4) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory

MODEL NO. DESCRIPTION: HES25 - X X X YYY - S**OUTPUT VOLTAGE/CURRENT RATINGS CHART**

DEFINED OUTPUT VOLTAGE	OUTPUT VOLTAGE (Vdc) / CURRENT (A)
$3.3\text{Vdc} \leq \text{Any Voltage} < 24.0\text{Vdc}$	3.3-5.0V/5.0-4.0A, 5.1-6.0V/3.95-3.5A, 6.1-7.4V/3.45-3.0A, 7.5-10.0V/2.98-2.5A, 10.1-15.0V/2.49-2.0A, 15.1-15.7V/1.98-1.91A, 15.8-16.6V/1.89-1.8A, 16.7-17.6V/1.79-1.7A, 17.7- 18.7V/1.69-1.6A, 18.8-20.0V/1.59-1.5A, 20.1-21.4V/1.49- 1.4A, 21.5-23.0V/1.39-1.3A, 23.1-23.9V/1.29-1.25A.
$24.0\text{Vdc} \leq \text{Any Voltage} \leq 36.0\text{Vdc}$	24.0-25.7V/1.5-1.4A, 25.8-27.6V/1.39-1.3A, 27.7-30.0V/1.29-1.2A, 30.1-32.7V/1.19-1.1A, 32.8-34.2V/1.09-1.05A, 34.3-34.9V/1.04-1.03A, 35.0-36.0V/1.02-1.0A.

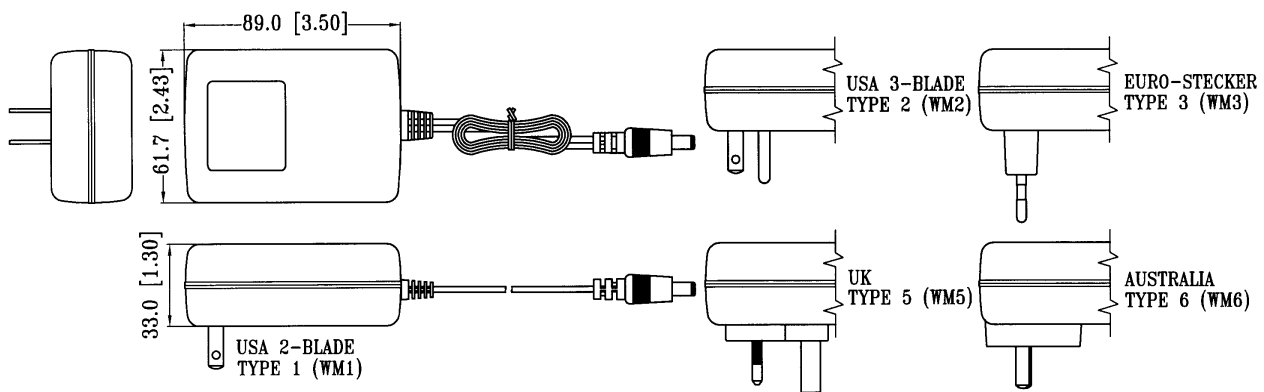
Note: Refer to the upper Chart or consult factory for the exact Model No. and V/A .

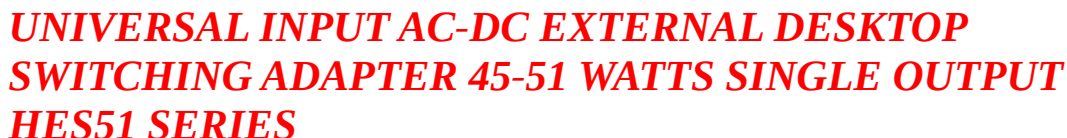
SINGLE OUTPUT (Model No. for example)

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HES25-033500-1	US 2-blade type(WM1)	3.3Vdc	5.00A
HES25-050400-2	US 3-blade type(WM2)	5.0Vdc	4.00A
HES25-090270-3	Euro type(WM3)	9.0Vdc	2.70A
HES25-120240-5	U.K type(WM5)	12.0Vdc	2.40A
HES25-150200-6	Australian type(WM6)	15.0Vdc	2.00A
HES25-180166-1	US 2-blade type(WM1)	18.0Vdc	1.66A
HES25-230130-2	US 3-blade type(WM2)	23.0Vdc	1.30A
HES25-240150-3	Euro type(WM3)	24.0Vdc	1.50A
HES25-300120-5	U.K type(WM5)	30.0Vdc	1.20A
HES25-360100-6	Australian type(WM6)	36.0Vdc	1.00A

MECHANICAL DIMENSIONS: MM [INCHES]

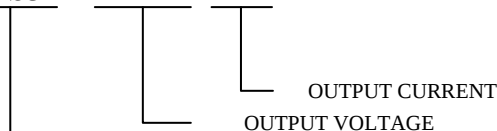
WEIGHT: 240g (8.5Oz).





- **ACCOMMODATE UNIVERSAL AC INPUT**
- **LOW PROFILE & HIGH POWER DENSITY**
- **DESKTOP IEC320-C8 AC INLET**
- **MEET UNIVERSAL SAFETY STANDARDS**
- **EMI MEET EN55022 / FCC CLASS B**
- **CE MARKING COMPLIANCE**



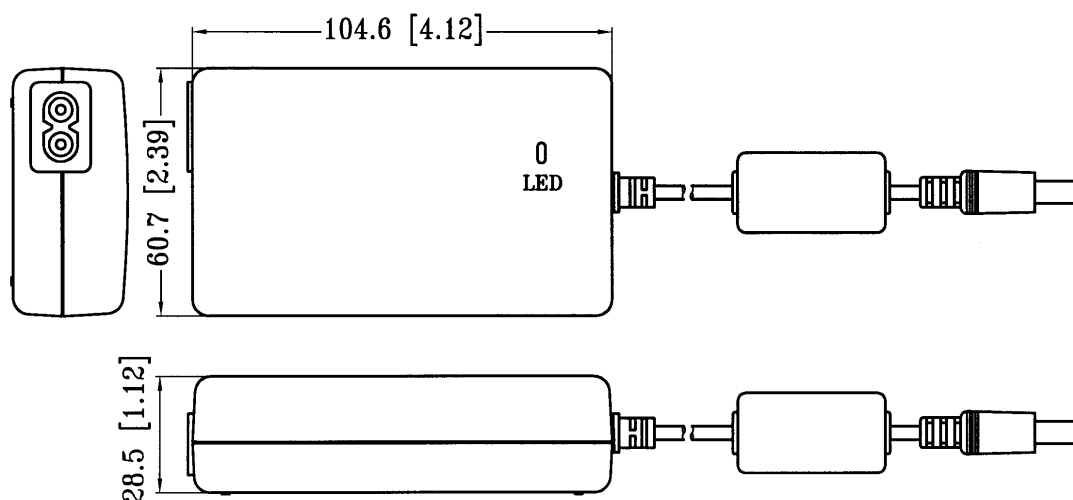
MODEL NO. DESCRIPTION: HES51 - X X X Y Y**OUTPUT VOLTAGE/CURRENT RATINGS CHART**

DEFINED OUTPUT VOLTAGE(Vdc)	OUTPUT VOLTAGE(Vdc) / CURRENT (A)
9.0Vdc ≤ Any Voltage ≤ 15.0Vdc	9.0-9.5V/5.0-4.7A, 9.6-10.0V/4.6-4.5A, 10.1-10.4V/4.4-4.3A, 10.5-11.0V/4.2A, 11.1-11.9V/4.1A, 12.0-12.5V/4.0A, 12.6-13.4V/3.9-3.7A, 13.5-14.1V/3.7-3.6A, 14.2-15.0V/3.5-3.4A.
15.0Vdc < Any Voltage ≤ 30.0Vdc	15.1-15.9V/3.3-3.2A, 16.0-17.0V/3.1A-3.0A, 17.1-18.2V/2.9-2.8A, 18.3-19.6V/2.7-2.6A, 19.7-21.2V/2.5-2.4A, 21.3-23.1V/2.3-2.2A, 23.2-24.2V/2.2-2.1A, 24.3-25.5V/2.0A, 25.6-26.8V/1.9A, 26.9-28.3V/1.8A, 28.4-30.0V/1.7A, 19.6V/3.0A.

Note: Refer to the upper Chart or specify the V/A ratings and consult factory for the exact Model No.

SINGLE OUTPUT *(Model No. for example)*

MODEL NO.	O/P VOLTAGE	O/P CURRENT
HES51-05060	5.0Vdc	6.0A
HES51-09050	9.0Vdc	5.0A
HES51-12040	12.0Vdc	4.0A
HES51-15034	15.0Vdc	3.4A
HES51-16031	16.0Vdc	3.1A
HES51-18028	18.0Vdc	2.8A
HES51-19630	19.6Vdc	3.0A
HES51-24021	24.0Vdc	2.1A
HES51-30017	30.0Vdc	1.7A
HES51-48010	48.0Vdc	1.0A
HES51-58007	58.0Vdc	0.7A

MECHANICAL DIMENSIONS: MM [INCHES]**WEIGHT: 185.0g (6.53 Oz.)**



UNIVERSAL INPUT AC-DC EXTERNAL DESKTOP SWITCHING ADAPTER 50-60 WATTS SINGLE, DUAL & TRIPLE OUTPUT HES61 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- DESKTOP IEC 320-C14 AC RECEPTACLE
- INPUT & OUTPUT LAMPS INDICATION
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET EN55022 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C14(DT7).
On-Off Switch: Option for Rocker switch with lamp.
Input Frequency: 47-63Hz.
Inrush Current: Typical 20A at 230Vac.
Input Current: Typical 1.3A at 115Vac, 0.6A at 230Vac.
Dielectric Withstand: Meet IEC60950.
EMI: Meet EN55022 / FCC Class B.
Hold-up Time: Typical 15mS at 115Vac,
Typical 75mS at 230Vac.
No Load Operation: No damage at no load.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 50-60 Watts.
Output Connection: Optional.
Output LED indicator: Installed.
Line Regulation: Typical 0.1%.
Load Regulation: Main O/P VO1 typical $\pm 1.5-3.0\%$.
Aux. O/P VO2 typical $\pm 3.0-5.0\%$. (Stacked on VO1).
Aux. O/P VO3 typical $\pm 1.0-2.0\%$. (P. R. installed).
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in on main output by crowbar.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 75-80%. (various with output voltage)
Switching Frequency: Approximate 44K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in less than
5mS following a 25% load change.
Safety Standard: Meet UL1950/ EN60950 Class I.
Power Density: 1.1-1.36 Watts / Cubic inch.

Operating Temperature: 0 to +40°C.
(various with output voltage)
Storage Temperature: -20 to +85°C.
Temperature Coefficient: 0.04%/ °C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic
enclosure case with venting slots.
Desktop Format.

NOTE: (1) The exact voltage regulation obtainable depends upon the cord selected and load current.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load is varied from half load to full load (unit $\pm\%$).
For the multi-output, the main output remains 50% load and other aux. output remains 20% load.

(3) The typical cord length 1 meter (about 3.3ft.), AWG#18 cord for various load conditions.

(4) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN O/P @	
	TYP.	VOLT.
HES61-10	9.0A	5.0Vdc #
HES61-11	4.2A	12.0Vdc
HES61-11A	4.0A	13.2Vdc
HES61-12	3.4A	15.0Vdc
HES61-13	2.2A	24.0Vdc
HES61-19	9.0A	3.3Vdc #

DUAL OUTPUT

MODEL NO.	MAIN O/P VO1@			AUX. O/P +VO2 † or-VO3 •		
	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.
HES61-20	7.0A	+5Vdc	9.0A	0.75A	-5Vdc	1.0A
HES61-21	5.0A	+5Vdc	8.0A	2.00A	+12Vdc	3.0A
HES61-21A	7.5A	+5Vdc	9.0A	0.50A	+12Vdc	1.0A
HES61-22	5.0A	+5Vdc	8.0A	1.60A	+15Vdc	2.0A
HES61-23	5.0A	+5Vdc	8.0A	1.00A	+24Vdc	1.5A
HES61-25	2.0A	+15Vdc	3.0A	1.70A	+8Vdc	2.0A

TRIPLE OUTPUT

MODEL NO.	MAIN O/P VO1 @			AUX. O/P VO2 †			AUX. O/P VO3 •		
	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.
HES61-30	5.0A	+5Vdc	8.0A	1.50A	+12Vdc	2.0A	0.5A	-12Vdc	1.0A
HES61-31	5.0A	+5Vdc	8.0A	1.50A	+12Vdc	2.0A	0.8A	-5Vdc	1.0A
HES61-32	5.0A	+5Vdc	8.0A	0.75A	+24Vdc	1.0A	0.5A	-12Vdc	0.9A
HES61-33	5.0A	+5Vdc	8.0A	1.50A	+15Vdc	2.0A	0.5A	-5Vdc	1.0A
HES61-34	5.0A	+5Vdc	8.0A	1.50A	+15Vdc	2.0A	0.2A	-15Vdc	0.4A

Symbol: "†" Stacked on main output. "•" Installed with Post of Regulator (P.R.). " " OVP built-in.

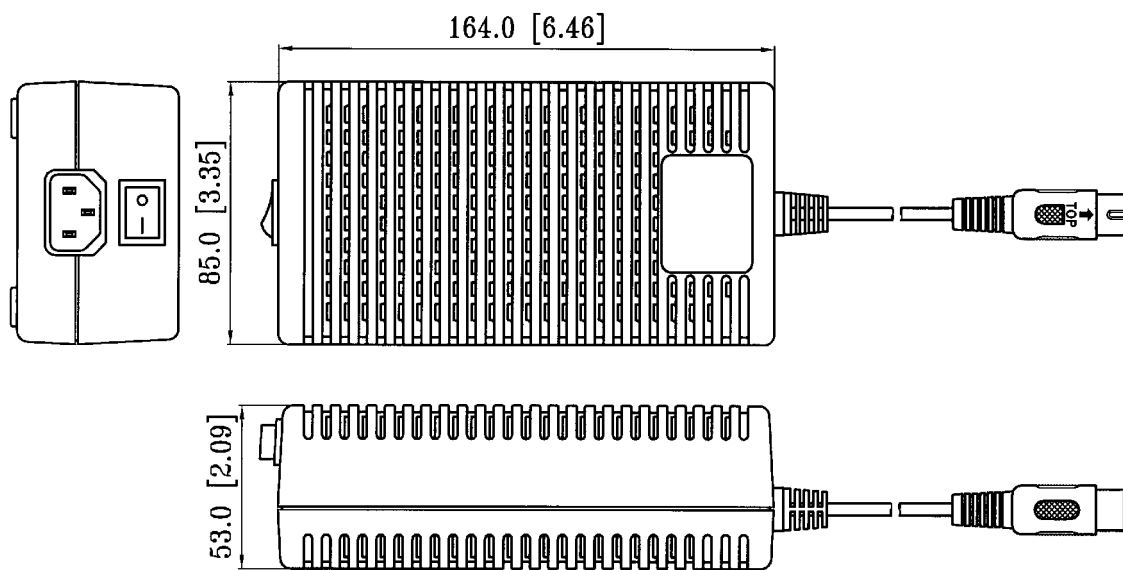
"#" Remote sense. "@ " Adjustable.

Remark: (1) At least 20% of typical main output current is required to maintain stated regulations.

(2) Max. Load (maximum load) is the continuous operating load of each rail, but the max. load of each rail can't be drawn from all outputs at the same time.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 531.0g (18.73 Oz.)





UNIVERSAL INPUT AC-DC EXTERNAL DESKTOP SWITCHING ADAPTER 60-65 WATTS SINGLE OUTPUT HES65 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- DESKTOP IEC320-C14/C8 AC RECEPTACLE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET EN55022 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: 3 pole AC inlet IEC320-C14(DT7) /
 2 pole AC inlet IEC320-C8(DT8).
Input Frequency: 47-63Hz.
Inrush Current: Less than 30A by adding thermister.
Input Current: Typical 1.3A at 115Vac, 0.55A at 230Vac.
Dielectric Withstand: Meet IEC60950-1.
EMI: Meet EN55022 / FCC Class B.
Hold-up Time: Typical 12mS at 115Vac,
 Typical 75mS at 230Vac.
Over Temp. Protection (OTP): Optional.
Over Current Protection (OCP): Optional.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 60-65Watts.
Output Connector & Cord: Optional.
Output LED Indicator: Installed.
Line Regulation: Typical 0.1%.
Load Regulation: Typical $\pm 1.5-3.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in, Zener Diode clamping.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 125-150% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 80-86%. (various with output voltage)
Switching Frequency: Approximate 85K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in less than
 3mS following a 25% load change.
Safety Standard: Meet UL60950-1/ EN60950-1 Class I for
 DT7 type or Class II for DT8 type.
Power Density: 3.9-4.2 Watts / Cubic inch.

Operating Temperature: 0 to +40°C.
 (various with output voltage)
Storage Temperature: -20 to +85°C.
Temperature Coefficient: 0.04% /°C.
Cooling: Free air convection.
Construction: Impact resistant thermo-plastic
 enclosure case.
Desktop Format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load is varied from half load to full load ($\pm\%$).

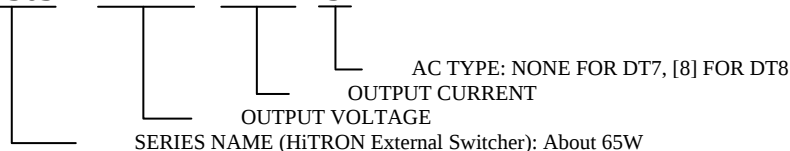
(3) The typical cord length is about 1 meter (3.3 ft.), AWG#18 cord for various load conditions.

(4) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

MODEL NO. DESCRIPTION: HES65 - X X X Y Y Y - S



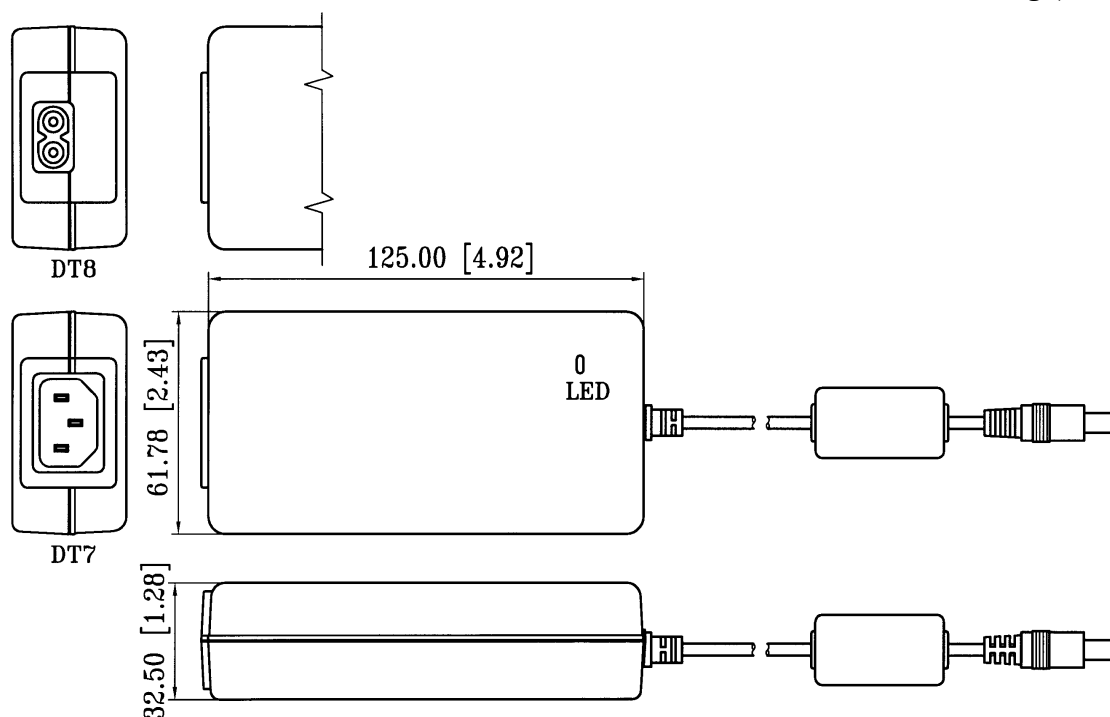
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT *(Model No. for example)*

MODEL NO.	AC INLET	O/P VOLTAGE	O/P CURRENT
HES65-033750	IEC320-C14(DT7)	3.3Vdc	7.50A
HES65-033750-8	IEC320-C8(DT8)	3.3Vdc	7.50A
HES65-050700	IEC320-C14(DT7)	5.0Vdc	7.00A
HES65-050700-8	IEC320-C8(DT8)	5.0Vdc	7.00A
HES65-090600	IEC320-C14(DT7)	9.0Vdc	6.00A
HES65-090600-8	IEC320-C8(DT8)	9.0Vdc	6.00A
HES65-120520	IEC320-C14(DT7)	12.0Vdc	5.20A
HES65-120520-8	IEC320-C8(DT8)	12.0Vdc	5.20A
HES65-150430	IEC320-C14(DT7)	15.0Vdc	4.30A
HES65-150430-8	IEC320-C8(DT8)	15.0Vdc	4.30A
HES65-180360	IEC320-C14(DT7)	18.0Vdc	3.60A
HES65-180360-8	IEC320-C8(DT8)	18.0Vdc	3.60A
HES65-196340	IEC320-C14(DT7)	19.6Vdc	3.40A
HES65-196340-8	IEC320-C8(DT8)	19.6Vdc	3.40A
HES65-240290	IEC320-C14(DT7)	24.0Vdc	2.90A
HES65-240290-8	IEC320-C8(DT8)	24.0Vdc	2.90A
HES65-360185	IEC320-C14(DT7)	36.0Vdc	1.85A
HES65-360185-8	IEC320-C8(DT8)	36.0Vdc	1.85A
HES65-480140	IEC320-C14(DT7)	48.0Vdc	1.40A
HES65-480140-8	IEC320-C8(DT8)	48.0Vdc	1.40A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 320.0g (11.30 Oz.)





UNIVERSAL INPUT AC-DC MEDICAL & ITE APPLICATION **OPEN FRAME INTERNAL SWITCHING POWER SUPPLIES** **150WATTS GREEN POWER SINGLE OUTPUT HICM150G SERIES**



FEATURES:

- **COMPACT 5"x 3" x 1.56" PCB FORMAT**
- **NO LOAD POWER CONSUMPTION <1W**
- **FREE AIR CONVECTION**
- **MEET MEDICAL STANDARDS IEC60601-1 & ITE STANDARDS IEC60950-1**
- **EMI MEET CISPR PUB. 22 & FCC CLASS B**
- **MEET UNIVERSAL SAFETY STANDARDS**
- **CE MARKING COMPLIANCE**

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Connector: V-H connector.
Input Frequency: 47-63Hz.
Inrush Current: Typical 8.7A rms at 230Vac.
Input Current: Typ. 1.6A at 115Vac, 0.8A at 230Vac.
Dielectric Withstand: Meet IEC60950-1 and IEC60601-1.
EMI: Meet CISPR PUB. 22 & FCC Class B.
Hold-up Time: Typ. 4.0mS at 115Vac and 230Vac.
Power Factor & Harmonic Correction:
 Meet IEC61000-3-2, PF Typ.0.94 at 230Vac.
Earth Leakage: Less than 0.3mA at 230Vac.
No Load Power: Less than 1.0W at 230Vac.
Remote On/Off: Available.
Over Temp. Protection: Installed by NTC.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: M-T connector.
Output Wattage: Typical 150 watts.
Line Regulation: Typical 1.0%.
Load Regulation: Typical $\pm 1.0\%$.
Total Regulation: Typical $\pm 1.0\%$.
Noise & Ripple: Typical 2.0% peak to peak.
OVP: Built-in (Latch).
Adjustability: Not available.
DC OK: Available.
Overload Protection (OLP):
 Fully protected against outputs overload and short circuit.
 Typ. OLP set at 130% of rating output power.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 88-91% (various with the output voltage) Switching Frequency: 90K Hz. Circuit Topology: Half-Bridge Resonant Converter Transient Response: Output voltage returns in less than 10mS following a 25% load change. Safety Standard: IEC 60950-1 & IEC60601-1 Class I.	Operating Temperature: 0 to +50 °C at full load without forced air flow. Storage Temperature: -25 to +85°C. Cooling: Free air convection. Construction: 5"x 3" x 1.56"PCB version. Power Density: 6.4 Watts / Cubic Inch.
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NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm\%$).

(3) Due to requests in market and advances in technology, specifications subject to change without notice.



In application

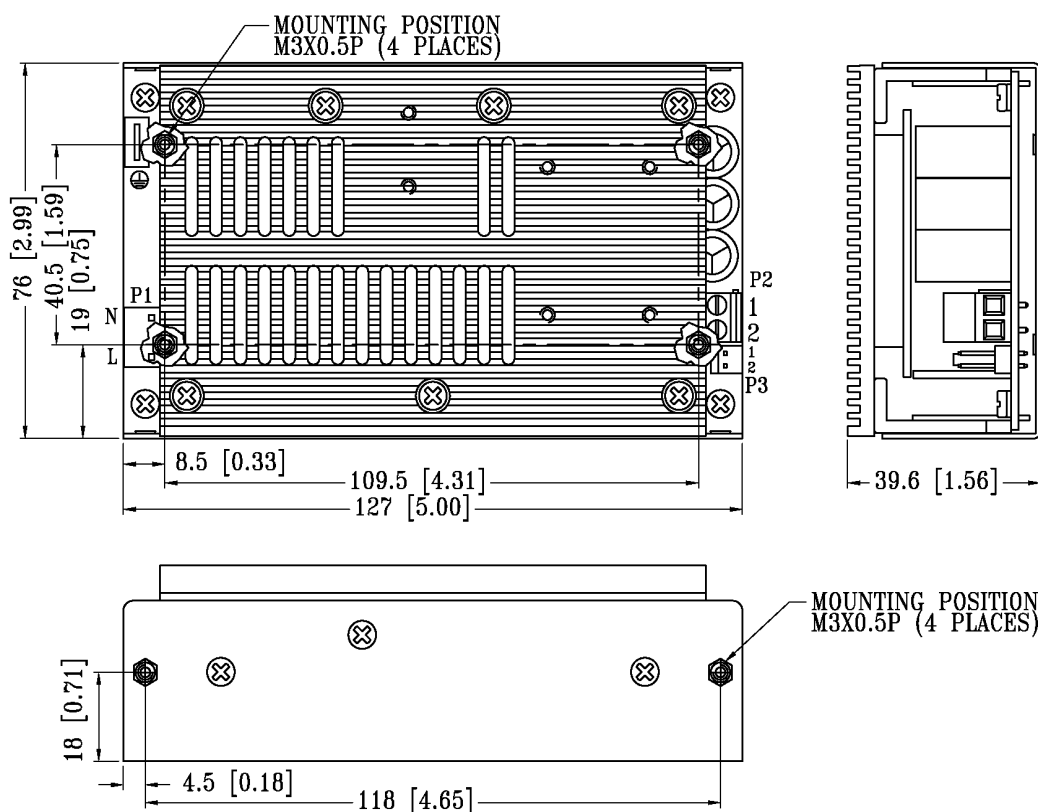
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1			
	Typ.	Volt.	Max.	Peak
HICM150G-S120120	12.50A	12.0V	12.50A	12.50A
HICM150G-S150100	10.00A	15.0V	10.00A	10.00A
HICM150G-S240625	6.25A	24.0V	6.25A	6.25A
HICM150G-S480312	3.12A	48.0V	3.12A	3.12A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 500g (17.64 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT CNTR/PIN#	AC INPUT			SINGLE OUTPUT			
	AC-L	AC-N	AC-G	VO1	DC COM	Power Fail	Remote On/Off
	P1-L	P1-N	G	P2-1	P2-2	P3-1	P3-2

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1@		
	Typ.	Volt.	Max.
HMI19-S033050	5.0A	+3.3V	6.0A
HMI19-S050043	4.3A	+5.0V	5.0A
HMI19-S120017	1.7A	+12.0V	2.0A
HMI19-S240009	0.9A	+24.0V	1.0A

DUAL OUTPUT

MODEL NO.	MAIN VO1@			AUX. VO2 † or •			
	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Pk.
HMI19-D033I	4.0A	+3.3V	5.0A	0.3A	+12V	0.6A	1A
HMI19-D033M	4.0A	+3.3V	5.0A	0.3A	+24V	0.5A	1A
HMI19-D050M	4.0A	+5.0V	5.0A	0.3A	+24V	0.5A	1A
HMI19-D050I	4.0A	+5.0V	5.0A	0.3A	+12V	0.6A	1A

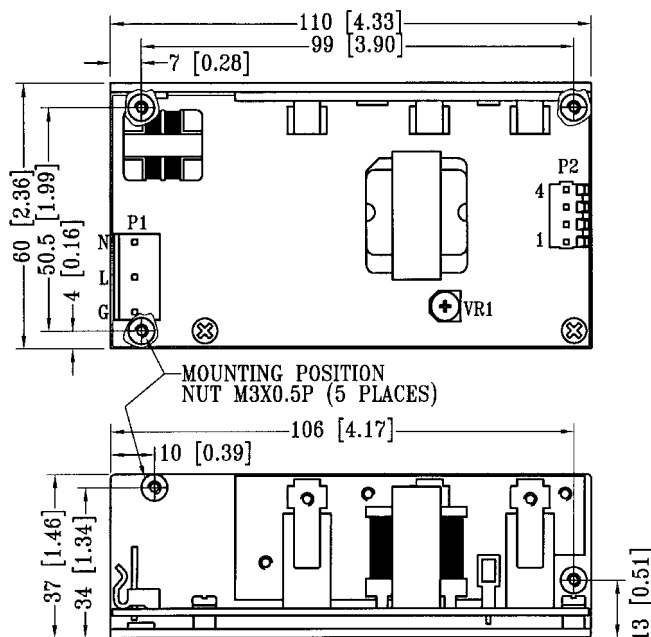
TRIPLE OUTPUT

MODEL NO.	MAIN VO1@			AUX. VO2 †				AUX. VO3 •			
	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Pk.	Typ.	Volt.	Max.	Pk.
HMI19-T033II	4.0A	+3.3V	5.0A	0.5A	+12V	1.0A	2A	0.3A	+12V	0.6A	1A
HMI19-T033MI	4.0A	+3.3V	5.0A	0.3A	+24V	0.5A	1A	0.3A	+12V	0.6A	1A
HMI19-T050II	3.0A	+5.0V	4.0A	0.5A	+12V	1.0A	2A	0.3A	+12V	0.6A	1A
HMI19-T050MI	3.0A	+5.0V	4.0A	0.3A	+24V	0.5A	1A	0.3A	+12V	0.6A	1A
HMI19-T050KK	3.0A	+5.0V	4.0A	0.4A	+15V	0.8A	1A	0.3A	-15V	0.6A	1A

Symbol: " " OVP built-in. "@" Adjustable. "•" Installed with Post Regulator (P.R.). "†" Stacked-on main O/P.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 373.0g (13.2 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	AC INPUT			SINGLE OUTPUT			DUAL OUTPUT				TRIPLE OUTPUT			
ASSIGNMENT	AC-L	AC-N	AC-G	VO1	N/A	DC COM.	VO1	VO2	N/A	DC COM.	VO1	VO2	VO3	DC COM.
CNTR & PIN #	P1-L	P1-N	P1-G	P2-2	P2-3,4	P2-1	P2-2	P2-4	P2-3	P2-1	P2-2	P2-3	P2-4	P2-1

Mating connector: P1: Molex 5195 or 5239 series. P2: Molex 5195 or 5239 series/ 3069 series.

• HiTRON

UNIVERSAL INPUT AC-DC MEDICAL APPLICATION INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 40-42 WATTS SINGLE OUTPUT HMI43 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- COMPACT 4"x2"x1" PCB FORMAT
- MEET MEDICAL STANDARD IEC60601-1
- EMI MEET EN 55011 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range typical 90-264Vac.
Rating 100 to 240Vac.
Input Connector: Molex connector or equivalent.
Input Frequency: 47-63Hz.
Inrush Current: $\leq 12A$ rms cold start at 230Vac.
Input Current: Typical 0.7A at 115Vac, 0.35A at 230Vac.
Dielectric Withstand: Meet IEC 60601-1.
EMI: Meet EN55011 / FCC Class B.
Hold-up Time: Typical 20mS at 115Vac,
Typical 100mS at 230Vac.
Leakage Current: Less than 0.1mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex connector or equivalent
Output Wattage: Typical 40-42 Watts.
Line Regulation: Typical 0.2%.
Load Regulation: Typical $\pm 2-3\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in at main output (Latch).
Adjustability: Factory set.
Overload Protection (OLP):
Fully protected against outputs overload and short circuit.
Typical OLP set at 105-120% of rating output power.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 85-90% (various with output voltage).
Switching Frequency: 85 KHz.
Circuit Topology: Fixed frequency flyback circuit.
Transient Response: Output voltage returns in less than
0.5mS following a 50% load change.
Safety Standard: Meet Medical standards UL 60601-1/
EN 60601-1 Class I.
Power Density: 5-5.25Watts / Cubic Inch.
Operating Temperature: 0 to +50 °C under forced air flow
for full load. Derate by 1.3W/ °C
from 40°C to 50 °C.
Storage Temperature: -20 to +85°C.
Cooling: At least 5 CFM(100LFM) direct forward air flow is
required to achieve full rating power.
Construction: 4 x2 x1 inch PCB format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



In application.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

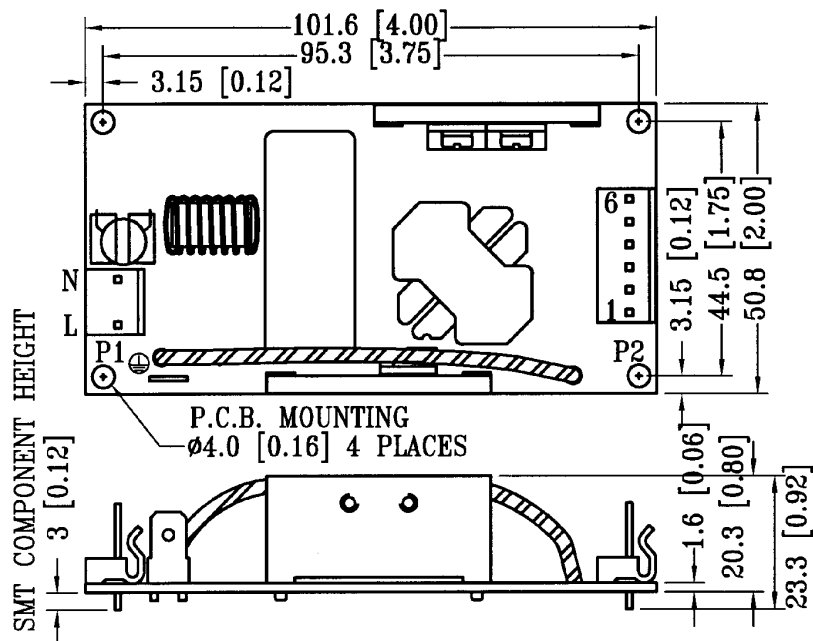
SINGLE OUTPUT

MODEL NO.	MAIN OUTPUT	
	Typ.	Volt.
HMI43-S120350	3.50A	12.0V
HMI43-S150270	2.70A	15.0V
HMI43-S240170	1.70A	24.0V
HMI43-S480085	0.85A	48.0V

Symbol: “ ” OVP built-in.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 145g (5.12 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE OUTPUT	
	AC-L	AC-N	AC-G	VO1	DC COM
CNTR/PIN#	P1-L	P1-N	G	P2-1,2	P2-3,4

Mating connector: P1,2 Molex # 5195 or 5239 series.



UNIVERSAL INPUT AC-DC MEDICAL APPLICATION INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 60 WATTS SINGLE OUTPUT HMI63 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- COMPACT 4"x2"x1"PCB FORMAT
- MEET MEDICAL STANDARD IEC 60601-1
- EMI MEET EN 55011 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range typical 90-264Vac.
Rating 100 to 240Vac.
Input Connector: Molex connector or equivalent.
Input Frequency: 47-63Hz.
Inrush Current: $\leq 12.0A$ rms cold start at 230Vac.
Input Current: Typical 0.9A at 115Vac, 0.435 at 230Vac.
Dielectric Withstand: Meet IEC 60601-1.
EMI: Meet EN 55011 / FCC Class B.
Hold-up Time: Typical 11.2mS at 115Vac,
Typical 72mS at 230Vac.
Leakage Current: Less than 0.1mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex connector or equivalent.
Output Wattage: Typical 60 watts.
Line Regulation: Typical 0.1%.
Load Regulation: Typical $\pm 1.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in at main output (Latch).
Adjustability: Factory Set.
Overload Protection (OLP):
Fully protected against outputs overload and short circuit.
Typical OLP set at 105-120% of rating output power.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 80-89.5 %. (various with output voltage).
Switching Frequency: 85KHz.
Circuit Topology: Fixed frequency flyback circuit.
Transient Response: Output voltage returns in less than
0.5mS following a 50% load change.
Safety Standard: Meet Medical standards UL 60601-1/
EN 60601-1 Class I.
Power Density: 7.5Watts / Cubic Inch.
Operating Temperature: 0 to +50 °C under forced air flow
for full load. Derate by 1.3W/°C
from 40°C to 50°C.
Storage Temperature: -20 to +85°C.
Temperature Coefficient: Typical 0.04%/°C.
Cooling: At least 5 CFM direct forward air flow is required to
achieve full rating power.
Construction: 4 x2 x1 inch PCB format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

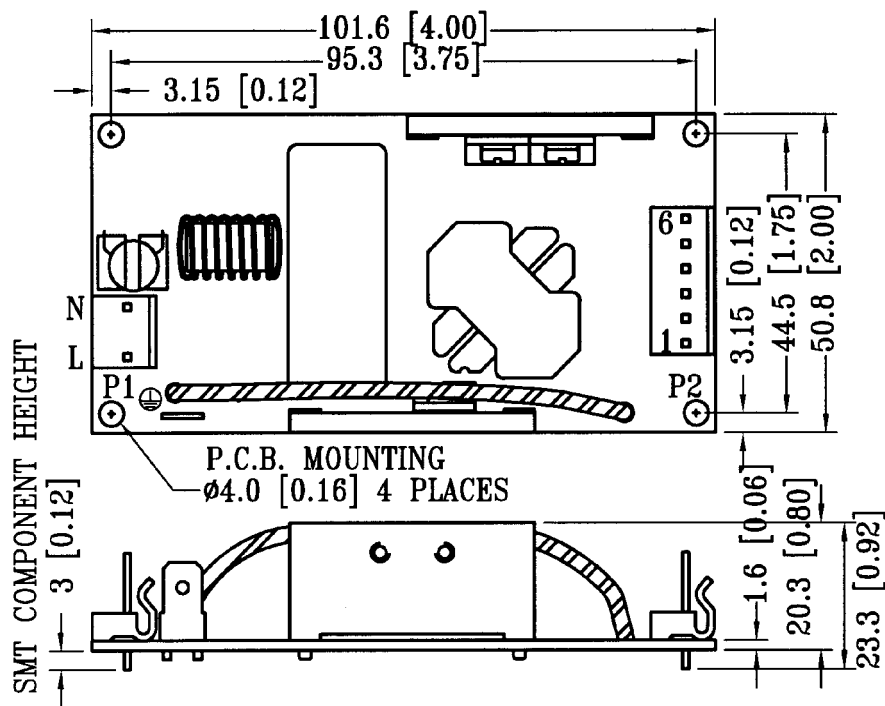
SINGLE OUTPUT

MODEL NO.	MAIN OUTPUT	
	Typ.	Volt.
HMI63-S120500	5.00A	12.0V
HMI63-S150400	4.00A	15.0V
HMI63-S240250	2.50A	24.0V
HMI63-S480125	1.25A	48.0V

Symbol: “ ” OVP built-in.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 145g (5.12 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE OUTPUT	
	AC-L	AC-N	AC-G	VO1	DC COM
CNTR/PIN#	P1-L	P1-N	G	P2-1,2	P2-3,4

Mating connector: P1,2 Molex # 5195 or 5239 series.



UNIVERSAL INPUT AC-DC MEDICAL & ITE APPLICATION INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 100 WATTS SINGLE & MULTI-OUTPUT HMI100 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- COMPACT 4.5"x 2.5"x1.2" PCB FORMAT
- MEET MEDICAL STANDARD IEC60601-1/
ITE STANDARD IEC60950-1
- EMI MEET EN55011/EN55022 FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: 90-264Vac.
Input Connector: Molex connector or equivalent.
Input Frequency: 47-63Hz.
Inrush Current: Typical 9.68Arms at 230Vac.
Input Current: Typical 1.8A at 115Vac, 0.9A at 230Vac.
Dielectric Withstand: Meet IEC 60601-1/IEC60950-1.
EMI: Meet EN55011 & EN55022 / CISPR Class B.
Hold-up Time: Typical 12.8mS at 115Vac,
Typical 76mS at 230Vac.
Leakage Current: Less than 0.189mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex connector or equivalent.
Output Wattage: Max. 100 Watts.
Line Regulation: Typical $\pm 0.5\%$.
Load Regulation: Main VO1 typical $\pm 1\%$.
Aux. VO2 typical $\pm 1\%$.
Aux. VO3/VO4 typical $\pm 5\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in at main output (Latch).
Adjustability: Available at VO1 and VO2.
Overload Protection (OLP):
Fully protected against outputs overload and short circuit.
Typical OLP set at 110-150% of rating output power.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 74-80% (various with output voltage).
Switching Frequency: 68 KHz.
Circuit Topology: Single-Forward circuit.
Multiple-Fixed freq. Flyback circuit.
Transient Response: Output voltage returns in less than
14-44mS following a 25% load change.
Safety Standard: IEC 60950-1 Class I for ITE use.
IEC 60601-1 Class I for Medical use.

Operating Temperature: 0 to +50 °C under forced air flow
for full load.(Various with output voltage).
Storage Temperature: -20 to +85°C.
Cooling: Requested 24CFM/600LFM cooling fan for
full rating load.
Power Density: 7.4 Watts / Cubic Inch.
Construction: 4.5"x2.5"x1.2" PCB format.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT (under forced air cooling)

MODEL NO.	MAIN +VO1 @ Typ. Volt.
HMI100-S033160	16.0A +3.3V
HMI100-S050200	20.0A +5.0V
HMI100-S070143	14.3A +7.0V
HMI100-S090111	11.1A +9.0V
HMI100-S120075	7.5A +12.0V
HMI100-S150060	6.0A +15.0V
HMI100-S180050	5.0A +18.0V
HMI100-S240041	4.1A +24.0V
HMI100-S330030	3.0A +33.0V
HMI100-S480021	2.1A +48.0V

DUAL OUTPUT (under forced air cooling)

MODEL NO.	MAIN +VO1 @ Typ. Volt.	AUX. +VO2@ Typ. Volt.
HMI100-D050I	12.0A + 5.0V	3.0A +12.0V
HMI100-D050K	12.0A +5.0V	3.0A +15.0V

Symbol: " " OVP built-in "@ " Adjustable

TRIPLE OUTPUT (under forced air cooling)

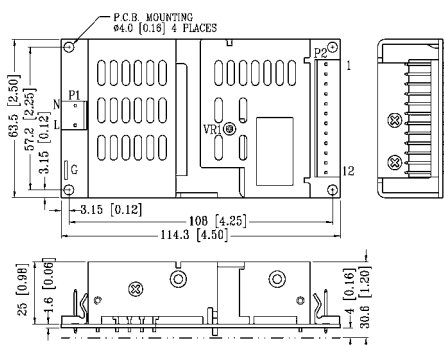
MODEL NO.	MAIN +VO1 @ Typ. Volt.	AUX. +VO2@ Typ. Volt.	AUX. +/-VO3 Typ. Volt.
HMI100-T033EI	8.0A +3.3V	7.0A +5.0V	0.8A +12.0V
HMI100-T050DI	8.0A +5.0V	6.0A +3.3V	0.8A +12.0V
HMI100-T050II	10.0A +5.0V	3.0A +12.0V	0.8A -12.0V
HMI100-T050IE	10.0A +5.0V	3.0A +12.0V	0.8A -5.0V
HMI100-T050KK	10.0A +5.0V	2.5A +15.0V	0.8A -15.0V
HMI100-T050KE	10.0A +5.0V	3.0A +15.0V	0.8A - 5.0V
HMI100-T050MI	10.0A +5.0V	1.5A +24.0V	0.8A -12.0V

QUAD OUTPUT (under forced air cooling)

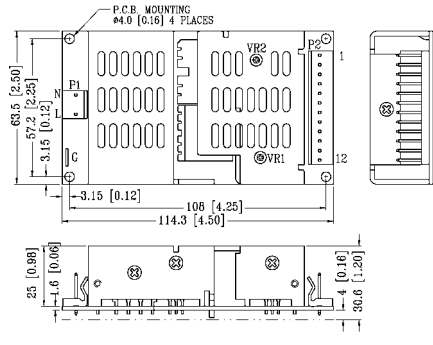
MODEL NO.	MAIN +VO1 @ Typ. Volt.	AUX. +VO2@ Typ. Volt.	AUX. VO3 Typ. Volt.	AUX. -VO4 Typ. Volt.
HMI100-Q033EII	7.0A +3.3V	8.0A +5.0V	0.5A +12.0V	0.5A -12.0V
HMI100-Q050DII	8.0A +5.0V	7.0A +3.3V	0.5A +12.0V	0.5A -12.0V
HMI100-Q050IIE	10.0A +5.0V	3.0A +12.0V	0.8A -12.0V	0.5A -5.0V
HMI100-Q050KKE	10.0A +5.0V	3.0A +15.0V	0.8A -15.0V	0.5A -5.0V
HMI100-Q050MII	10.0A +5.0V	1.5A +24.0V	0.8A +12.0V	0.5A -12.0V
HMI100-Q050MKK	10.0A +5.0V	1.5A +24.0V	0.8A +15.0V	0.5A -15.0V

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 240g (8.11 Oz.)



Single O/P



Multiple O/P

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	AC INPUT			SINGLE		DUAL			TRIPLE				QUAD				
ASSIGNMENT	AC-L	AC-N	AC-G	VO1	DC COM	VO1	VO2	DC COM	VO1	VO2	VO3	DC COM	VO1	VO2	VO3	VO4	DC COM
CNTR/PIN#	P1-L	P1-N	G	P2-1,2 P2-3,4	P2-5,6 P2-7,8	P2-1,2 P2-3,4	P2-9,10	P2-5,6 P2-7,8	P2-1,2 P2-3,4	P2-9,10	P2-12	P2-5,6 P2-7,8	P2-1,2 P2-3,4	P2-9,10	P2-11	P2-12	P2-5,6 P2-7,8

Mating connector: P1,2 Molex # 5195 or 5239 series.

• HiTRON

UNIVERSAL INPUT HARMONIC CORRECTION(PFC) AC-DC MEDICAL & ITE APPLICATION INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 150 WATTS SINGLE, DUAL, TRIPLE & QUAD OUTPUT HIMP151 SERIES



FEATURES:

- 5" X 3" X 1.38" COMPACT SIZE
- ACCOMMODATE UNIVERSAL AC INPUT
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- EMI MEET CISPR EN 55022/EN 55011 & FCC CLASS B CONDUCTED
- MEET UNIVERSAL SAFETY STANDARDS
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: Molex connector or equivalent.
Input Frequency: 47-63Hz.
Inrush Current: 9.3-11.3Arms at 230Vac.
Input Current: Typical 2.2A at 115Vac, 0.9A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1/IEC60601-1.
EMI: Meet CISPR EN 55022 & FCC Class B conducted.
Meet CISPR EN 55011 & FCC Class B conducted.
Hold-up Time: Typical 90mS at 115Vac & 230Vac.
Power Factor & Harmonic Correction:
Meet IEC 61000-3-2, PF typical 0.99 at full load.
Over Temperature Protection: Installed.
Leakage Current: 0.40-0.50mA at 230Vac touch current.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex connector or equivalent.
Output Wattage: Max. 150 Watts.
Line Regulation: Typical 1.0%.
Load Regulation: Single O/P VO1 $\pm 3.0\%$.
Dual O/P VO1 $\pm 3.0\%$ VO2 $\pm 1.0\%$
Triple O/P VO1 $\pm 3.0\%$ ($\pm 8\%$ for 3.3V), VO2/VO3 $\pm 3.0\%$.
Quad O/P VO1/VO2/VO3/VO4 $\pm 3.0\%$
Noise & Ripple: Typical 1.0-2.0% peak to peak.
OVP: Built-in at VO1 and VO2.
Adjustability: Available at VO1 and VO2.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 76-80%. (various with output)
Switching Frequency: 68K Hz.
Circuit Topology: Single Fixed Frequency Forward circuit.
Dual/Triple/Quad: Fixed Freq. Flyback circuit.
Transient Response: Output voltage returns in less than
14.8-25.2mS following a 25% load change.
Safety Standard: IEC 60950-1 Class I for ITE use.
IEC 60601-1 Class I for Medical use.
Operating Temperature: 0 to +50°C under 30 CFM
forced air cooling for full load.
Storage Temperature: -20 to +85°C.
Cooling: Requested 30 CFM/650LFM forced air flow for
full load.
Construction: 4.5"x2.5"x1.2" PCB format.
Power Density: 6.52-7.24 Watts / Cubic Inch.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.
(2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT (Under air cooling)

MODEL NO.	MAIN VO1 @		
	Typ.	Volt.	Max.
HIMP151-S050270	27.0A	5V	30.0A
HIMP151-S120125	12.5A	12V	12.5A
HIMP151-S150100	10.0A	15V	10.0A
HIMP151-S240063	6.3A	24V	6.3A
HIMP151-S480031	3.1A	48V	3.1A

DUAL OUTPUT (Under forced air cooling)

MODEL NO.	MAIN VO1 @			AUX. VO2 @		
	Typ.	Volt.	Max.	Typ.	Volt.	Max.
HIMP151-D050I	15.00A	+5V	15.00A	6.00A	+12V	6.00A
HIMP151-D050M	15.0A	+5V	15.0A	3.00A	+24V	3.00A
HIMP151-D120I	6.25A	+12V	6.25A	6.25A	+12V	6.25A
HIMP151-D150K	5.0A	+15V	5.00A	5.00A	+15V	5.00A

TRIPLE OUTPUT (Under forced air cooling)

MODEL NO.	MAIN VO1 @			AUX. VO2 @			AUX. VO3 ●		
	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Typ.	Volt.	Max.
HIMP151-T033EI	18A	+3.3V	20A	13.5A	+5V	15A	0.8A	+12V	0.8A
HIMP151-T050II	15A	+5.0V	15A	5.5A	+12V	5.5A	0.8A	+12V	0.8A
HIMP151-T050KK	15A	+5.0V	15A	4.5A	+15V	4.5A	0.5A	+15V	0.5A

QUAD OUTPUT (Under forced air cooling)

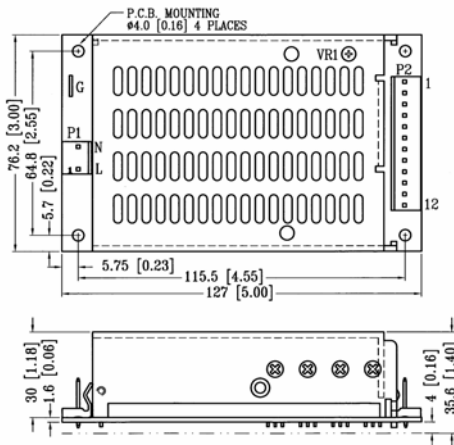
MODEL NO.	MAIN VO1 @			AUX. VO2 @			AUX. VO3 ●			AUX. VO4 ●		
	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Typ.	Volt.	Max.
HIMP151-Q050KKE	15A	+5V	15A	4A	+15V	4A	0.8A	-15V	0.8A	0.5A	-5V	0.5A

Symbol: " " OVP built-in. "@" Adjustable. "●" Post-Regulated

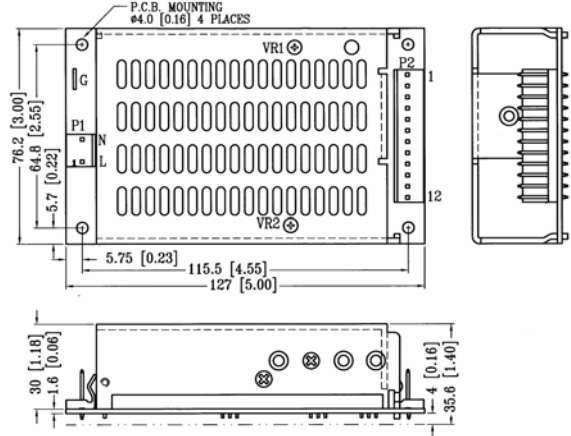
Remark: Please refer to the derating chart depending on ambient temperature and fan cooling.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 385.0g (13.4 Oz.)



Single O/P



Multiple O/P

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE O/P			DUAL O/P			TRIPLE O/P				QUAD O/P			
	AC-L	AC-N	AC-G	VO1	DC-COM	VO1	VO2	DC-COM	VO1	VO2	VO3	DC-COM	VO1	VO2	VO3	+VO4	DC COM
CNTR & PIN #	P1-L	P1-N	P1-G	P2-1,2,3,4,5,6	P2-7,8,9,10,11,12	P2-1,2,3,4	P2-9,10	P2-5,6,7,8	P2-1,2,3,4	P2-9,10	P2-11	P2-5,6,7,8	P2-1,2,3,4	P2-9,10	P2-11	P2-12	P2-5,6,7,8

Mating connector: Moles 5195 or 5239 series.

• HiTRON

UNIVERSAL INPUT HARMONIC CORRECTION RESONANT DESIGN AC-DC MEDICAL & ITE APPLICATION INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 150 WATTS DUAL OUTPUT HIRM150P SERIES



FEATURES:

- 4" X 2" X 1.34" COMPACT SIZE
- ACCOMMODATE UNIVERSAL AC INPUT
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- RESONANT DESIGN CIRCUIT
- AUXILIARY FAN +12V OUTPUT
- EMI MEET CISPR EN 55011/EN55022 & FCC CLASS B
- MEET UNIVERSAL SAFETY STANDARDS
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: Molex connector or equivalent.
Input Frequency: 47-63Hz.
Inrush Current: 10.5Arms at 230Vac.
Input Current: Typical 1.53A at 115Vac, 0.78A at 230Vac.
Dielectric Withstand: Meet IEC 60601-1/IEC60950-1.
EMI: Meet CISPR EN 55022 & FCC Class B conducted.
Meet CISPR EN 55011 & FCC Class B conducted.
Hold-up Time: Typical 10 mS at 115Vac & 230Vac.
Power Factor & Harmonic Correction:
Meet IEC 61000-3-2, PF typical 0.93 at full load.
Over Temperature Protection: Installed.
Leakage Current: Typical 0.3mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex connector or equivalent.
Output Wattage: Max. 150 watts.
Line Regulation: Typical 0.1%.
Load Regulation: VO1 typ. $\pm 0.4\%$, VO2 typ. $\pm 2\%$ (for fan).
Total Regulation: Typical 2-3%.
Noise & Ripple: Typical 1.0-2.0% peak to peak.
OVP: Built-in, Latch.
Adjustability: Available.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 110-140% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 87-90 %. (various with output voltage)
Switching Frequency: 65K Hz.
Circuit Topology: Half-bridge ZVS circuit.
Transient Response: Peak deviation 116mV, Output voltage returns in less than 0 mS following a 25% load change.
Safety Standard: IEC 60950-1 Class I for ITE use.
IEC 60601-1 Class I for Medical use.
Operating Temperature: 0 to +70°C range.
0 to +50°C under 500 LFM forced air cooling for full load.
From +50°C, derating linearly to 60% load at +70°C.
Storage Temperature: -20 to +85°C.
Cooling: Requested 500 LFM forced air flow for full load.
Construction: PCB format.
Power Density: 14 Watts / Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



In application.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

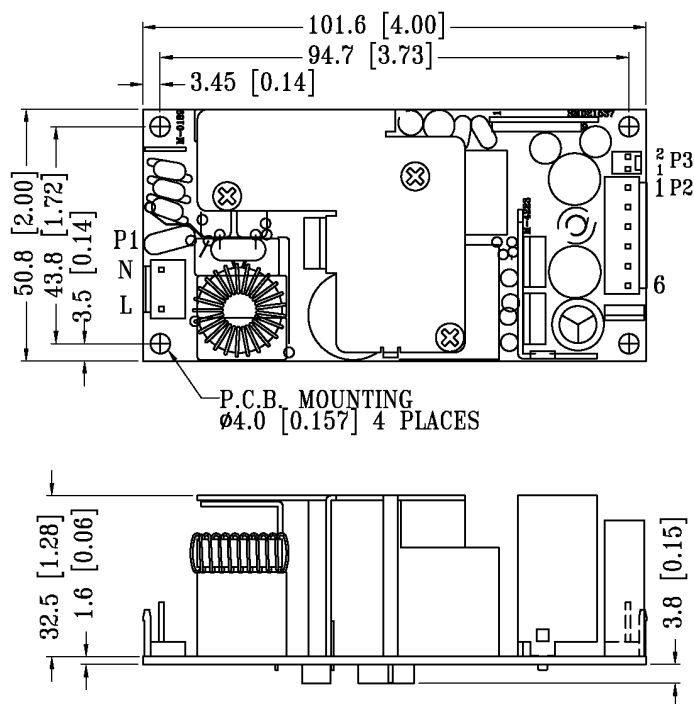
DUAL OUTPUT (Under 500LFM air cooling)

MODEL NO.	MAIN VO1 @			AUX. VO2		
	Typ.	Volt.	Max.	Typ.	Volt.	Max.
HIRM150P-D120I	12.5A	+12V	12.5A	0.3A	+12V	0.5A
HIRM150P-D150I	10.0A	+15V	10.0A	0.3A	+12V	0.5A
HIRM150P-D240I	6.3A	+24V	6.3A	0.3A	+12V	0.5A
HIRM150P-D480I	3.1A	+48V	3.1A	0.3A	+12V	0.5A

Symbol: " " OVP built-in. "@"Adjustable. " " Synchronous Rectifier.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 215.55g (7.60oz)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT CNTR & PIN #	AC INPUT			DUAL O/P		
	AC-L	AC-N	AC-G	VO1	VO2/STAND BY	DC-COM
	P1-L	P1-N	P1-G	P2-1,2,3	P3-1	P2-4,5,6/P3-2

• HiTRON

UNIVERSAL INPUT HARMONIC CORRECTION (PFC) AC-DC MEDICAL APPLICATION INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 250 WATTS SINGLE OUTPUT HIMP250 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- MEET IEC 61000-3-2 HARMONIC CORRECTION (PFC)
- MEET MEDICAL STANDARD EN 60601-1/UL 60601-1
- EMI MEET EN 55011 / FCC CLASS A
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: B-S connector.
Input Frequency: 47-63Hz.
Inrush Current: 11.5Arms at 230Vac.
Input Current: 2.64A at 115Vac, 1.29A at 230Vac.
Dielectric Withstand: Meet IEC 60601-1.
EMI: Meet EN 55011 FCC Class A.
Hold-up Time: Typical 20.8mS at 115Vac,
Typical 23.2mS at 230Vac.
Power Fail Signal: Installed.
Power Factor & Harmonic Correction:
Meet IEC 61000-3-2, PF typ. 0.98-0.99 at full load.
Over Temperature Protection: By thermostat.
Leakage Current: Less than 0.047mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: B-S connector.
Output Wattage: Typical 250 watts.
Line Regulation: Typical 1.0%.
Load Regulation: Typical $\pm 0.5\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in.
Adjustability: Available.
Remote on/off: Available.
DC OK Signal: Installed.
Overload Protection (OLP):
Fully protected against outputs overload and short circuit.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 83-87 %. (various with output voltage).
Switching Frequency: 130KHz.
Circuit Topology: PWM fixed frequency forward circuit.
Transient Response: Output voltage returns in less than
64mS following a 25% load change.
Safety Standard: Meet Medical standards IEC 60601-1/
UL 60601-1/EN 60601-1 Class I.

Operating Temperature: 0 to +50 °C under 30 CFM
forced air cooling.
Storage Temperature: -20 to +85°C.
Cooling: Requested 30 CFM forced air flow for full load.
Construction: U-bracket construction format.
Power Density: 3.13Watts / Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



In application.

OUTPUT VOLTAGE/CURRENT RATINGS CHART

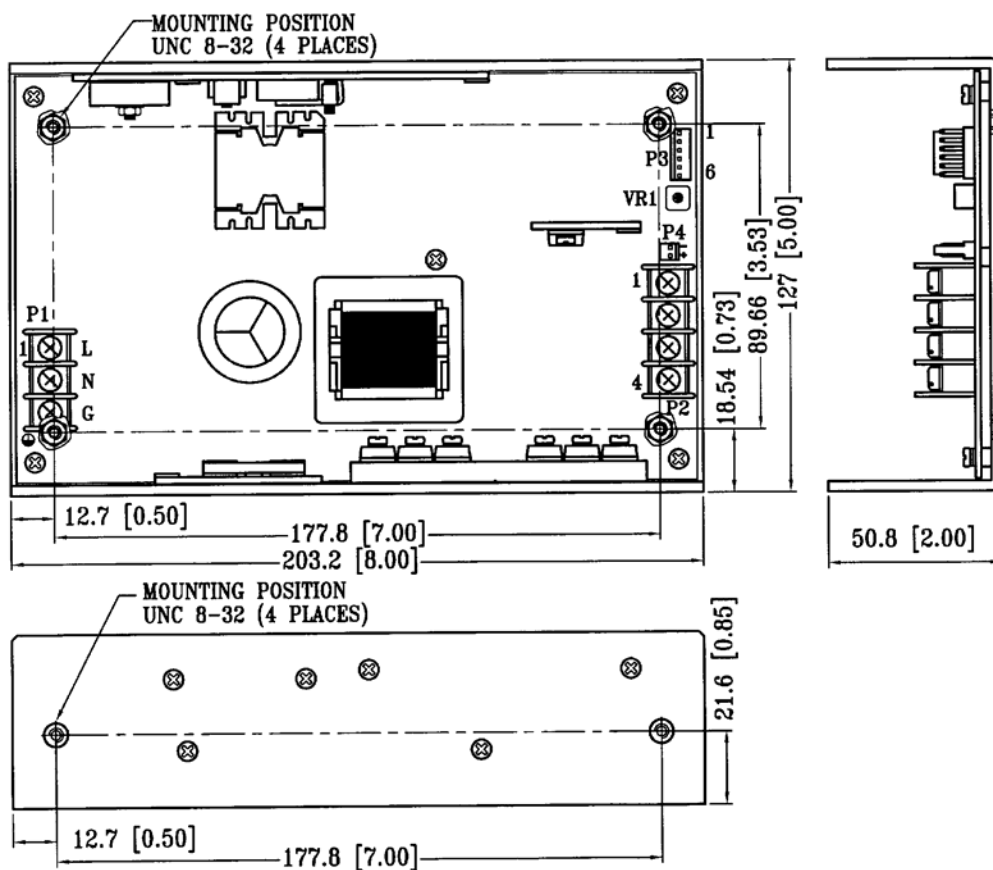
SINGLE OUTPUT

MODEL NO.	MAIN OUTPUT	
	Typ.	Volt.
HIMP250-S120210	21.0A	12.0Vdc
HIMP250-S150170	17.0A	15.0Vdc
HIMP250-S240105	10.5A	24.0Vdc
HIMP250-S480052	5.2A	48.0Vdc

Symbol: “ ” OVP built-in.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 1.4Kg (49.3 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT CNTR/PIN#	AC INPUT			SINGLE OUTPUT		ASSORTED SIGNALS						
	AC-L	AC-N	AC-G	VO1	DC COM	DC OK	FAL	EXT OFF	+S	-S	FAN	COM
	P1-L	P1-N	P1-G	P2-1,P2-2	P2-3,P2-4	P3-1	P3-2	P3-3	P3-4	P3-5	P4-1	P4-2



UNIVERSAL INPUT AC-DC OPEN FRAME INTERNAL SWITCHING POWER SUPPLIES 50WATTS GREEN POWER SINGLE OUTPUT HICG50 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC SOURCES
- COMPACT 4"x2"x1"PCB FORMAT
- NO LOAD POWER CONSUMPTION <0.5W
- MEET UNIVERSAL SAFETY STANDARDS
- CONDUCTED/RADIATED EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range typ. 90-264Vac.
 Rating 100 to 240Vac.
Input Connector: V-M connector.
Input Frequency: 47-63Hz.
Inrush Current: $\leq 12.0A$ rms at cold start 230Vac.
Input Current: Typ. 0.9A at 115Vac, 0.435A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Conducted/Radiated Meet CISPR PUB. 22
 & FCC Class B.
Hold-up Time: Typ. 14.2mS at 115Vac, 80.mS at 230Vac.
Earth Leakage: Less than 0.42mA at 230Vac.
No Load Power: Less than 0.5Watt.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: V-M connector.
Output Wattage: Typical 50 watts.
Line Regulation: Typical 0.1%.
Load Regulation: Main VO1 typical $\pm 1.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in at main output VO1(Latch).
Adjustability: Not available.
Overload Protection (OLP):
 Fully protected against outputs overload and short circuit.
 Typ. OLP set at 125-150% of rating output power.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 85% (various with the output voltage) Switching Frequency: 65K Hz. Circuit Topology: Fixed frequency flyback circuit. Transient Response: Output voltage returns in less than 0.5mS following a 50% load change. Safety Standard: IEC 60950-1 Class I.	Operating Temperature: -20 to +50 °C at full load without forced air flow. Storage Temperature: -25 to +85°C. Cooling: Free air convection. Construction: 4"x2"x1" PCB format. Power Density: 6.25 Watts / Cubic Inch.
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NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load regulation is measured at 115Vac or 230Vac in percentage to indicate the change in output voltage as the load varied from half load to full load ($\pm\%$).

(3) Due to requests in market and advances in technology, specifications subject to change without notice.



In application

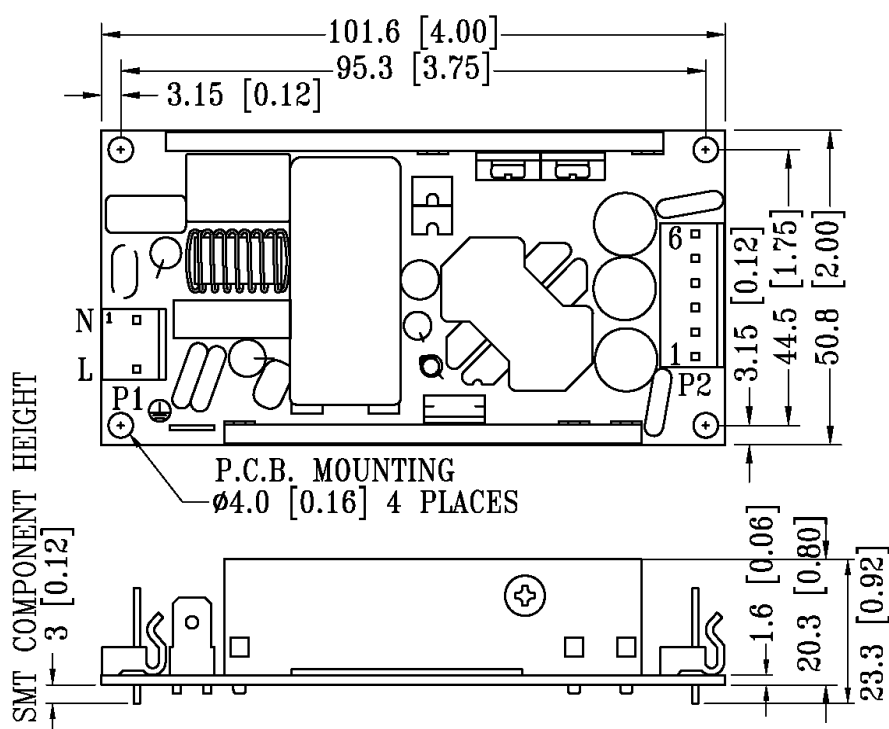
OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1			
	Min.	Typ.	Volt.	Max.
HICG50-S033500	0.0A	5.00A	3.3V	5.00A
HICG50-S050500	0.0A	5.00A	5.0V	5.00A
HICG50-S120416	0.0A	4.16A	12.0V	4.16A
HICG50-S150340	0.0A	3.40A	15.0V	3.40A
HICG50-S240210	0.0A	2.10A	24.0V	2.10A
HICG50-S360140	0.0A	1.40A	36.0V	1.40A
HICG50-S480125	0.0A	1.25A	48.0V	1.25A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 121g (4.27 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE OUTPUT	
	AC-L	AC-N	AC-G	VO1	DC COM
CNTR/PIN#	P1-L	P1-N	G	P2-1,2	P2-3,4

Mating connector: P1,2 Molex # 5195 or 5239 series.



UNIVERSAL INPUT AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 10-12 WATTS SINGLE OUTPUT HVI12 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- LOW-PROFILE PCB FORMAT
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range typical 90-264Vac.
Rating 100 to 240Vac.
Input Connector: Molex 5045-NA or JST B3B-XH-A.
Input Frequency: 47-63Hz.
Inrush Current: Typical 20A at 230Vac.
Input Current: Typical 0.34A at 115Vac,
Typical 0.17A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB.22 & FCC Class B.
Hold-up Time: Typical 10mS at 115Vac,
Typical 40mS at 230Vac.
Leakage Current: Typical 0.3mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 10-12 Watts.
Output Connector: Molex 5045-NA or JST B3B-XH-A.
Line Regulation: Typical 0.1%.
Load Regulation: Typical $\pm 1-2.0\%$.
Noise & Ripple: Typical 1% peak to peak.
OVP: Built-in at main output VO1 (Zener diode).
Adjustability: Available at main output VO1.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 70-75%. (various with output voltage)
Switching Frequency: Typical 45K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in less than 3mS following a 25% load change.
Safety Standard: Meet IEC 60950-1/UL 60950-1 Class I.
Operating Temperature: 0 to +50°C.
Storage Temperature: -20 to +85°C.
Temperature Coefficient: Typical 0.04% /°C.
Cooling: Free air convection.
Construction: PCB open frame format.
Power Density: 2.-2.4 Watts / Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.
(2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

DEFINED OUTPUT VOLTAGE (Vdc)	OUTPUT VOLTAGE (Vdc) / CURRENT (A)
3.0 Vdc ≤ Any Voltage ≤ 24.0 Vdc	3.0-4.0V/ 3.0-2.7A, 4.1-5.0V/ 2.6-2.4A, 5.1-6.0V/ 2.3-2.0A, 6.1-7.0V/ 1.9-1.7A, 7.1-8.0V/ 1.6-1.5A, 8.1-9.0V/ 1.4-1.3A, 9.1-10.0V/ 1.3-1.2A, 10.1-11.0V/ 1.1-1.0A, 11.1-12.0V/ 1.0A, 12.1-13.3V/ 0.9A, 13.4-15.0V/ 0.8A, 15.1-17.1V/ 0.7A, 17.2-20.0V/ 0.6A, 20.1-24.0V/ 0.5A, 24.0V/ 0.6A.

Note: Refer to the upper chart or specify the V/A ratings and consult factory for the exact Model No.

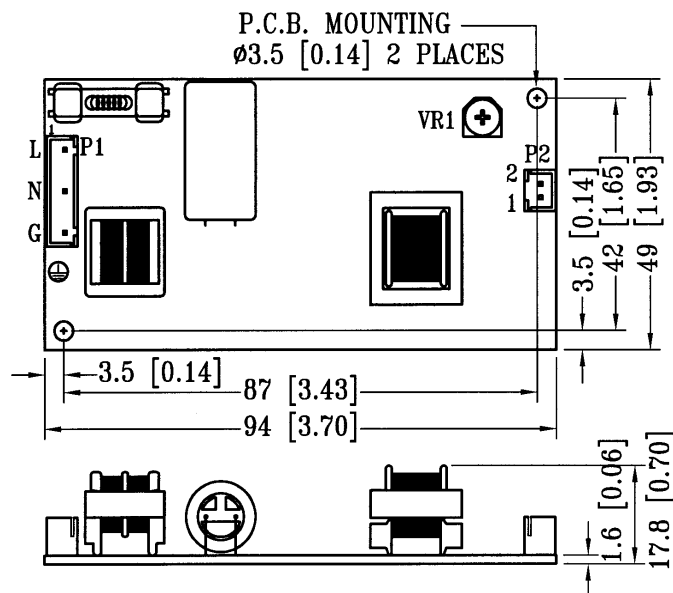
SINGLE OUTPUT (Model No. for example)

MODEL NO.	MAIN VO1 @ Volt. Typ.
HVI12-03030	3.0V 3.0A
HVI12-03329	3.3V 2.9A
HVI12-05024	5.0V 2.4A
HVI12-09013	9.0V 1.3A
HVI12-12010	12.0V 1.0A
HVI12-15008	15.0V 0.8A
HVI12-18006	18.0V 0.6A
HVI12-24005	24.0V 0.5A
HVI12-24006	24.0V 0.6A

Symbol: " " OVP built-in. "@ " Adjustable.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 54.0g (1.9 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE OUTPUT	
	AC-LINE	AC-NEUTRAL	AC-GROUND	VO1	DC COM
CONNECTOR & PIN #	P1-L	P1-N	P1-G	P2-2	P2-1

Mating connector: Molex 5051-N/ JST XHP-3.

• H HiTRON

UNIVERSAL INPUT AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 19-25 WATTS SINGLE, DUAL & TRIPLE OUTPUT HVI19 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- COMPACT OPEN FRAME FORMAT
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range typical 90-264Vac.
Rating 100 to 240Vac.
Input Connector: Molex 5273(vertical) or equivalent.
Input Frequency: 47-63Hz.
Inrush Current: Typical 20A at 230Vac.
Input Current: Typical 0.70A at 115Vac, 0.3A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB. 22 & FCC Class B.
Hold-up Time: Typical 40mS at 115Vac,
Typical 150mS at 230Vac.
Leakage Current: Less than 0.3mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex 5273 or 41671 or equivalent.
Output Wattage: PCB 19 watts, L-Bracket 25 watts.
Line Regulation: Typ. 0.1%.
Load Regulation: Main VO1 typ. $\pm 1-2\%$
Aux. VO2 typ. $\pm 3-5\%$ (stacked on).
Aux. VO3 typ. $\pm 2-3\%$ (P.R.).
Noise & Ripple: Typ. 1.0% peak to peak.
OVP: Built-in at Main VO1.
Adjustability: Available at Main VO1.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 70%. (various with output voltage)	Operating Temperature: 0 to +50 °C.
Switching Frequency: 40KHz.	Storage Temperature: -20 to +85 °C.
Circuit Topology: Free-running Flyback circuit.	Temperature Coefficient: Typical 0.04% / °C.
Transient Response: Output voltage returns in less than 3ms following a 25% load change.	Cooling: Free air convection cooling.
Power Density: 1.15-1.67 Watts /Cubic Inch.	Safety Standard: Meet UL 60950-1/EN 60950-1 Class I.
	Construction: PCB or L-Bracket format.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1 @★		
	Typ.	Volt.	Max.
HVI19-10	4.0A	5V	5.0A
HVI19-10(L-B)	4.6A	5V	5.0A
HVI19-11	1.5A	12V	1.5A
HVI19-11(L-B)	2.0A	12V	2.5A
HVI19-12	1.2A	15V	1.3A
HVI19-12(L-B)	1.6A	15V	1.7A
HVI19-13	0.8A	24V	1.0A
HVI19-13(L-B)	1.0A	24V	1.2A

DUAL OUTPUT

MODEL NO.	MAIN VO1 @★			AUX. +VO2 † or -VO3 •		
	Typ.	Volt.	Max.	Typ.	Volt.	Max.
HVI19-20	3.0A	+5V	4.0A	0.20A	-5V	1.0A
HVI19-20(L-B)	4.0A	+5V	5.0A	0.50A	-5V	1.0A
HVI19-21	2.6A	+5V	3.0A	0.50A	±12V	1.0A
HVI19-21(L-B)	4.0A	+5V	5.0A	0.50A	±12V	1.0A
HVI19-22	2.6A	+5V	3.0A	0.40A	±15V	0.8A
HVI19-22(L-B)	4.0A	+5V	5.0A	0.40A	±15V	0.8A
HVI19-23	2.6A	+5V	3.0A	0.25A	+24V	0.5A
HVI19-23(L-B)	4.0A	+5V	5.0A	0.25A	+24V	0.5A

TRIPLE OUTPUT

MODEL NO.	MAIN VO1 @★			AUX. VO2 †			AUX. VO3 •		
	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Typ.	Volt.	Max.
HVI19-30	2.2A	+5V	3.0A	0.5A	+12V	1.0A	0.2A	-12V	0.5A
HVI19-30(L-B)	3.0A	+5V	4.0A	0.5A	+12V	1.0A	0.4A	-12V	0.8A
HVI19-31	2.0A	+5V	3.0A	0.5A	+12V	1.0A	0.2A	-5V	0.5A
HVI19-31(L-B)	3.0A	+5V	4.0A	0.7A	+12V	1.5A	0.3A	-5V	0.6A
HVI19-32	2.0A	+5V	3.0A	0.3A	+24V	0.5A	0.2A	-12V	0.5A
HVI19-32(L-B)	3.0A	+5V	4.0A	0.3A	+24V	0.5A	0.3A	-12V	0.6A
HVI19-33	2.0A	+5V	3.0A	0.3A	+15V	0.6A	0.2A	-15V	0.5A
HVI19-33(L-B)	3.0A	+5V	4.0A	0.4A	+15V	0.8A	0.3A	-15V	0.6A

Symbol: "★" OVP built-in. "@" Adjustable. "†" Stacked on main O/P. "•" Installed with Post Regulator (P.R.).

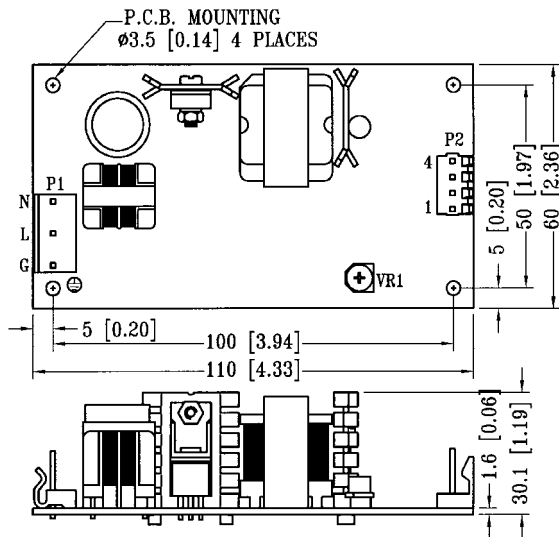
Remark: (1) At least 20% of typical main output current is required to maintain stated regulation.

(2) Max. current can't be drawn from all output at the same time.

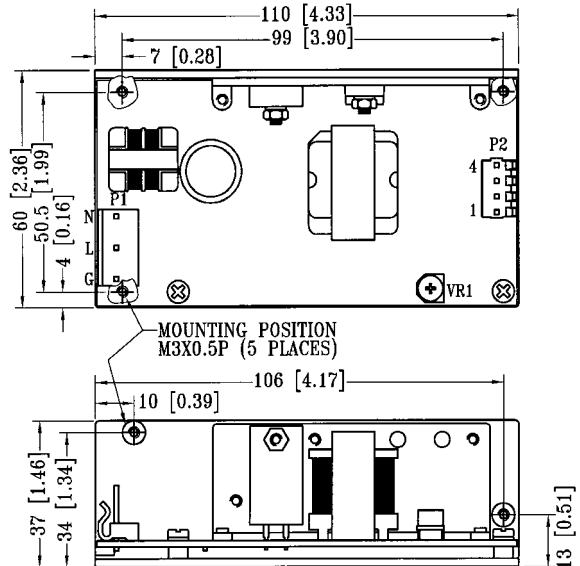
MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: PCB 148.0g(5.2 Oz.)

L-B 223.0g(7.9 Oz.)



PCB FORMAT



L-B FORMAT

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE		SINGLE/DUAL/TRIPLE OUTPUT			
	AC-L	AC-N	AC-G	VO1	DC COM	VO1	VO2	VO3	DC COM
CONNECTOR or PIN#	P1-L	P1-N	P1-G	P2-3,4	P2-1,2	P2-2	P2-3	P2-4	P2-1

Mating connector: P1 Molex 5195 or 5239 series. P2 Molex 5195, 5239 or 3069 series.

• **HiTRON**

UNIVERSAL INPUT AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 40-50 WATT SINGLE, DUAL & TRIPLE OUTPUT HVI41 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- SMALL & COMPACT IN SIZE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range typ. 90-264Vac.
Rating 100 to 240Vac.
Input Connector: Molex connector or equivalent.
Input Frequency: 47-63Hz.
Inrush Current: Typical 25.0A at 230Vac.
Input Current: Typical 0.7-1.2A at 115Vac.
Typical 0.3-0.4A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB. 22 & FCC Class B.
Hold-up Time: Typical 18mS at 115Vac,
Typical 90mS at 230Vac.
Leakage Current: Less than 0.3mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 40 watts with convection or
50 watts with 20 CFM fan cooling.
Output Connector: Molex connector or equivalent.
Line Regulation: Typical 0.1%.
Load Regulation: Main VO1 typical $\pm 2.0\%$.
Aux. VO2 typical $\pm 5.0\%$ (stacked on).
VO3 typical $\pm 3.0\%$ (P.R.).
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in at main VO1 (Latch).
Adjustability: Available at main VO1.
Overload Protection (OLP): Fully protected against output
overload and short circuit.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 75-85%. (various with output voltage)
Switching Frequency: 60KHz.
Circuit Topology: Fixed Frequency Flyback Circuit.
Transient Response: Output voltage returns in less than
3mS following a 25% load change.
Safety Standard: Meet IEC 60950-1/UL 60950-1 Class I.

Operating Temperature: 0 to +50°C.
Storage Temperature: -20 to +85°C.
Temperature Coefficient: Typ. 0.04% /°C
Cooling: Free air convection, or with 20CFM fan cooling.
Construction: PCB open frame format.
Power Density: 3.0-3.79Watts / Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1 @		
	Typ.	Fan-C	Volt.
HVI41-10	8.00A	9.0A	5.0V
HVI41-11	3.30A	4.0A	12.0V
HVI41-12	2.60A	3.3A	15.0V
HVI41-13	1.60A	2.0A	24.0V
HVI41-14	1.28A	1.8A	30.0V
HVI41-16	0.80A	1.0A	48.0V
HVI41-19	8.00A	9.0A	3.3V

DUAL OUTPUT

MODEL NO.	MAIN VO1 @			AUX. VO2 † or – VO3		
	Typ.	Fan-C	Volt.	Typ.	Fan-C	Volt.
HVI41-20	6.0A	7.0A	5.0V	2.0A	2.5A	5.0V
HVI41-21	4.0A	4.5A	5.0V	2.0A	2.5A	12.0V
HVI41-22	4.0A	4.5A	5.0V	1.5A	2.0A	15.0V
HVI41-23	4.0A	4.5A	5.0V	1.0A	1.5A	24.0V
HVI41-24	1.8A	2.0A	12.0V	1.8A	2.0A	12.0V
HVI41-290	5.0A	6.0A	3.3V	1.8A	2.0A	5.0V

TRIPLE OUTPUT

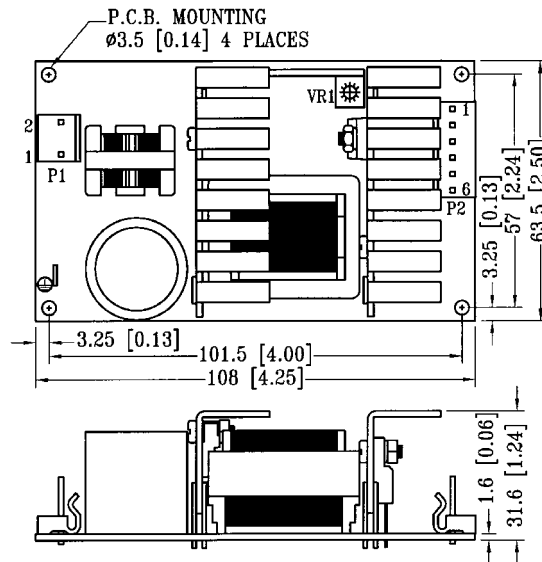
MODEL NO.	MAIN VO1 @			AUX. VO2 †			AUX. VO3 •		
	Typ.	Fan-C	Volt.	Typ.	Fan-C	Volt.	Typ.	Fan-C	Volt.
HVI41-30	4.0A	4.5A	+5.0V	2.0A	3.0A	+12V	0.2A	0.5A	-12V
HVI41-31	4.0A	4.5A	+5.0V	2.0A	3.0A	+12V	0.2A	0.5A	-5V
HVI41-32	4.0A	4.5A	+5.0V	0.5A	1.0A	+24V	0.2A	0.5A	-12V
HVI41-33	4.0A	4.5A	+5.0V	1.6A	2.0A	+15V	0.2A	0.5A	-15V
HVI41-33A	1.0A	1.5A	+5.0V	0.5A	0.8A	+15V	0.5A	0.8A	-15V
HVI41-390	4.0A	4.5A	+3.3V	1.8A	2.0A	+5V	0.2A	0.5A	-12V
HVI41-391	4.0A	4.5A	+3.3V	1.8A	2.0A	+5V	0.2A	0.5A	-5V

Symbol: "★" OVP built-in. "@" Adjustable. "†" Stacked on main O/P. "•" Installed with Post Regulator (P.R.).

Remark: (1) Fan-C: Requested 20CFM fan cooling.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 169.0g (5.96 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE OUTPUT		DUAL OUTPUT			TRIIPLE OUTPUT			
	AC-LINE	AC-NEUTRAL	FASTON	VO1	DC COM	VO1	VO2	DC COM	VO1	VO2	VO3	DC COM
CONNECTOR & PIN #	P1-1	P1-2	AC-GROUND	P2-1,2,3	P2-4,5,6	P2-2,3	P2-1	P2-4,5,6	P2-2,3	P2-1	P2-6	P2-4,5

Mating connector: Molex 5195 or 5239 series.



UNIVERSAL INPUT AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 40-43 WATTS SINGLE & TRIPLE OUTPUT HVI43 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- COMPACT 4"x2"x1" PCB FORMAT
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range typical 90-264Vac.
Rating 100 to 240Vac.

Input Connector: Molex connector or equivalent.

Input Frequency: 47-63Hz.

Inrush Current: $\leq 12A$ rms cold start at 230Vac.

Input Current: Typical 0.7A at 115Vac, 0.35A at 230Vac.

Dielectric Withstand: Meet IEC 60950-1.

EMI: Meet CISPR PUB. 22 & FCC Class B.

Hold-up Time: Typical 20mS at 115Vac,
Typical 100mS at 230Vac.

Leakage Current: Less than 0.4mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Output Connector: Molex connector or equivalent.

Output Wattage: Typical 40-43 Watts.

Line Regulation: Typical 0.2%.

Load Regulation: Main VO1 typ. $\pm 2-3\%$.
Aux.VO2 typ. $\pm 4-6\%$ (Common choke).
Aux.VO3 typ. $\pm 3.0\%$ (P.R.).

Noise & Ripple: Typical 1.0% peak to peak.

OVP: Built-in at main output VO1 (Latch).

Adjustability: Not available.

Overload Protection (OLP): Fully protected against
outputs overload and short circuit.
Typical OLP set at 105-120% of rating output power.
Consult the factory for OLP setting

GENERAL SPECIFICATION

Efficiency: Typical 75-80%. (various with output voltage)

Switching Frequency: 130KHz or 70KHz.

Circuit Topology: Fixed frequency forward circuit for triple
output and 5V/3.3V of single output.
Fixed frequency flyback circuit for high
voltage of single output.

Transient Response: Output voltage returns in less than
0.5mS following a 50% load change.

Safety Standard: Meet IEC 60950-1 Class I.

Power Density: 5-5.25Watts / Cubic Inch.

Operating Temperature: 0 to +50 °C under forced air flow
for full load. Derate by 1.3W/ °C
from 40°C to 50 °C.

Storage Temperature: -20 to +85°C.

Temperature Coefficient: Typical 0.04%/°C.

Cooling: At least 5 CFM(100LFM) direct forward air flow is
required to achieve full rating power.

Construction: 4"x2"x1" PCB format.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1				
	Min.	Typ.	Volt.	Max.	Peak
HVI43-S033800	0.2A	8.00A	3.3V	8.00A	10A
HVI43-S050800	0.2A	8.00A	5.0V	8.00A	10A
HVI43-S120340	0.0A	3.40A	12.0V	3.40A	4A
HVI43-S150270	0.0A	2.70A	15.0V	2.70A	3A
HVI43-S240170	0.0A	1.70A	24.0V	1.70A	2A
HVI43-S480085	0.0A	0.85A	48.0V	0.85A	1A

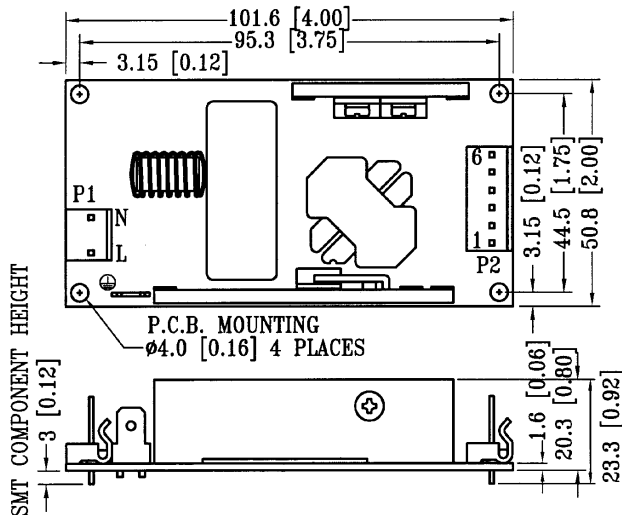
TRIPLE OUTPUT

MODEL NO.	MAIN +VO1					AUX. +VO2■					AUX. -VO3●				
	Min.	Typ.	Volt.	Max.	Peak	Min.	Typ.	Volt.	Max.	Peak	Min.	Typ.	Volt.	Max.	Peak
HVI43-T050II	0.5A	4.0A	+5.0V	6A	8A	0.1A	1.5A	+12V	2.0A	3.0A	0A	0.5A	-12V	0.5A	1A
HVI43-T050MI	0.5A	4.0A	+5.0V	6A	8A	0.1A	0.7A	+24V	1.0A	1.5A	0A	0.5A	-12V	0.5A	1A
HVI43-T050KK	0.5A	4.0A	+5.0V	6A	8A	0.1A	1.0A	+15V	1.5A	2.0A	0A	0.5A	-15V	0.5A	1A
HVI43-T033EI	0.5A	6.0A	+3.3V	6A	8A	0.2A	3.0A	+5V	3.0A	4.0A	0A	0.5A	-12V	0.5A	1A

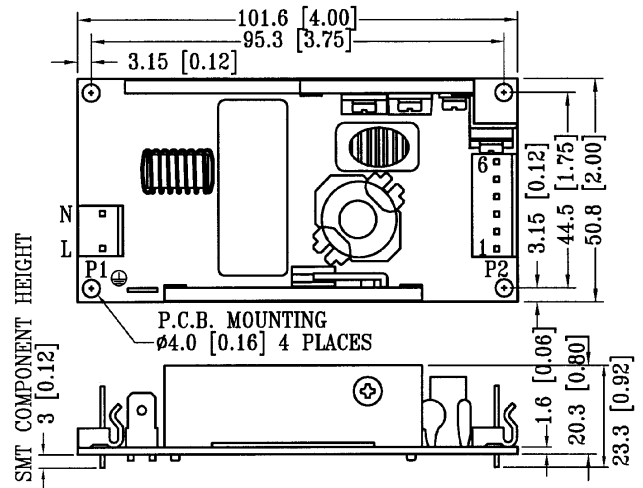
Symbol: " " OVP built-in. "■" Couple common choke. "●" Post-Regulated.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 145g (5.12 Oz.)



SINGLE OUTPUT



TRIPLE OUTPUT

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE OUTPUT		TRIPLE OUTPUT			
	AC-L	AC-N	AC-G	VO1	DC COM	VO1	VO2	VO3	DC COM
CNTR/PIN#	P1-L	P1-N	G	P2-1,2	P2-3,4	P2-1,2	P2-6	P2-5	P2-3,4

Mating connector: P1,2 Molex # 5195 or 5239 series.

• **HiTRON**

UNIVERSAL INPUT AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 40-50 WATTS SINGLE, DUAL, TRIPLE & QUAD OUTPUT HVI48 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- COMPACT PCB OR BOX FORMAT
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range 90-264Vac.

Rating 100 to 240Vac.

Input Connector:

PCB Format Molex 5273(vertical) or equivalent.

Box Format 3 pole IEC320 AC inlet receptacle
with on/off switch.

Input Frequency: 47-63Hz.

Inrush Current: $\leq 30.6A$ peak at 230Vac.

Input Current: Typical 1.32A at 115Vac,
Typical 0.65A at 230Vac.

Dielectric Withstand: Meet IEC 60950-1.

EMI: Meet CISPR PUB. 22 & FCC Class B.

Hold-up Time: Typical 10mS at 115Vac,
Typical 50mS at 230Vac.

Leakage Current: Less than 0.3mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Output Connector: **PCB Format** Molex 5273(vertical).

Box Format Optional for output cord.

Output Wattage: With fan cooling 50 Watts.

Without fan cooling 40 Watts.

Line Regulation: Typical 0.1%.

Load Regulation: Main VO1 typical $\pm 1.0\%$.

Aux. VO2 typical $\pm 2.5\%$ (stacked).

VO3 typical $\pm 1.3\%$ (P.R.).

VO4 typical $\pm 5.8\%$ (semi-regulated).

Noise & Ripple: Typical 1.0% peak to peak.

OVP: Built-in at main VO1.

Adjustability: Available at main VO1.

Remote Sense: Option for VO1.

Overload Protection (OLP):

Fully protected against output overload and short circuit.

OLP set at about 125-150% rating output wattage.

Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 75%. (various with output voltage)

Switching Frequency: Fixed frequency 38KHz.

Circuit Topology: Fixed Frequency Flyback circuit.

Transient Response: Output voltage returns in less than
3mS following a 25% load change.

Safety Standard: Meet UL 1950/EN 60950 Class I.

Power Density: 2.1-2.6 Watts / Cubic Inch (PCB Format).

Operating Temperature: 0 to $+50^{\circ}C$.

Storage Temperature: -20 to $+85^{\circ}C$.

Temperature Coefficient: Typical $0.03\%/^{\circ}C$.

Cooling: Free air convection for 40Watts.

20CFM fan cooling for 50Watts.

Construction: Open frame PCB format or
enclosure metal box format.

NOTE: (1)All measurement are at nominal input, full load and $+25^{\circ}C$ unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1 @★		
	Typ.	Volt.	Fan
HVI48-S033080	8.0A	3.3V	10.0A
HVI48-10	7.0A	5.0V	9.0A
HVI48-10B	6.0A	5.0V	8.0A
HVI48-11	3.3A	12.0V	4.0A
HVI48-12	2.7A	15.0V	3.4A
HVI48-13	1.8A	24.0V	2.1A
HVI48-S480010	1.0A	48.0V	1.2A

DUAL OUTPUT

MODEL NO.	MAIN VO1 @★			AUX.+VO2 †or-VO3•		
	Typ.	Volt.	Fan	Typ.	Volt.	Fan
HVI48-20	6.0A	+5V	7.0A	0.5A	-5V	1.0A
HVI48-21	4.0A	+5V	5.0A	1.5A	+12V	1.7A
HVI48-22	4.0A	+5V	5.0A	1.2A	+15V	1.3A
HVI48-23	4.0A	+5V	5.0A	0.8A	+24V	0.9A

TRIPLE OUTPUT

MODEL NO.	MAIN VO1@★			AUX. VO2 †			AUX. VO3 •		
	Typ.	Volt.	Fan	Typ.	Volt.	Fan	Typ.	Volt.	Fan
HVI48-30	3.5A	+5V	4.0A	1.5A	+12V	2.0A	0.4A	-12V	0.4A
HVI48-31	3.5A	+5V	4.0A	1.5A	+12V	2.0A	0.5A	-5V	0.4A
HVI48-32	3.5A	+5V	4.0A	0.8A	+24V	1.0A	0.4A	-12V	0.4A
HVI48-33	3.5A	+5V	4.0A	1.2A	+15V	1.4A	0.4A	-15V	0.4A

QUAD OUTPUT

MODEL NO.	MAIN VO1@★		AUX. VO2 †		AUX. VO3		AUX. VO4	
	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.
HVI48-49	2.2A	3.3V	0.8A	5.1V	1.2A	-23V	0.13A	-57V
HVI48-Q033EMS	2.2A	3.3V	0.8A	5.0V	1.2A	-24V	0.13A	-72V
HVI48-Q033EMQ	2.5A	3.3V	0.8A	5.0V	1.2A	-24V	0.15A	-48V

Symbol: "★" OVP built-in. "@" Adjustable. "†" Stacked on main O/P. "•" Installed with Post Regulator (P.R.).

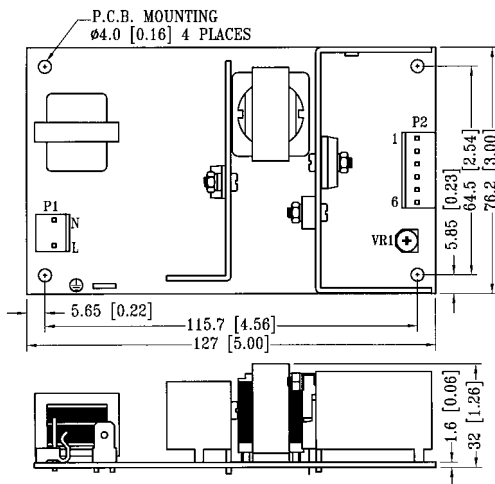
Remark:(1) At least 20% of typical main output current is required to maintain stated regulation.

(2) FAN: Requested 20CFM FAN cooling.

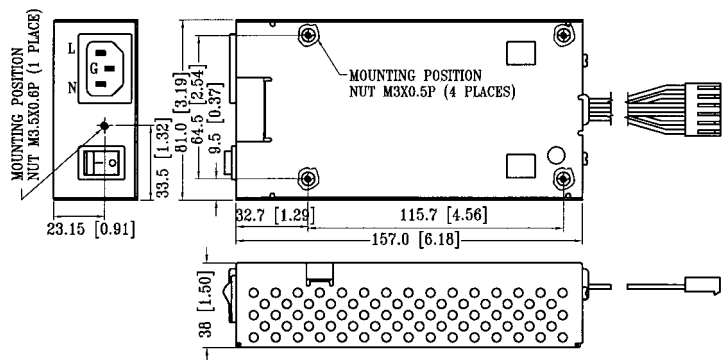
MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: PCB 262.0g (9.24 Oz.)

BOX 616.0g (21.7 Oz.)



PCB FORMAT



BOX FORMAT

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT FOR PCB VERSION

ASSIGNMENT	AC INPUT			SINGLE O/P		DUAL O/P			TRIPLE O/P			
	AC-LINE	AC-NEUTRAL	AC-GROUND	+VO1	DC COM	+VO1	VO2	DC COM	+VO1	VO2	-VO3	DC COM
CONNECTOR & PIN #	P1-L	P1-N	FASTON	P2-1,2,3	P2-4,5,6	P2-2,3	P2-1	P2-4,5,6	P2-2,3	P2-1	P2-6	P2-4,5

Mating connector: Molex 5195 or 5239 series.

HiTRON

UNIVERSAL INPUT AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 51 WATTS DUAL & TRIPLE OUTPUT HVI51 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- EXTRA LOW PROFILE OPEN FRAME
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range 90-264Vac.
Rating 100 to 240Vac.
Input Connector: Molex 5273 or equivalent.
Input Frequency: 47-63Hz.
Inrush Current: $\leq 30.6A$ at 230Vac.
Input Current: Typical 1.3A at 115Vac,
Typical 0.65A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB. 22 & FCC B.
Hold-up Time: Typical 10mS at 115Vac,
Typical 50mS at 230Vac.
Leakage Current: Less than 0.5mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex 5273(vertical) or equivalent.
Output Wattage: Typical 51Watts.
Line Regulation: Typical 0.1%.
Load Regulation: Main VO1 typical $\pm 1.0\%$
Aux. VO2 & VO3 typical $\pm 2.0\%$ (P.R.)
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in at main VO1.
Adjustability: Available for VO1.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 70%. (various with output voltage)
Switching Frequency: Fixed frequency 70KHz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Output voltage returns in
less than 3mS following a
25% load change.
Safety Standard: Meet UL 60950-1/EN 60950-1 Class I.

Operating Temperature: 0 to $+50^{\circ}C$.
Storage Temperature: -20 to $+85^{\circ}C$.
Temperature Coefficient: Typical $0.03\%/^{\circ}C$.
Cooling: Free air convection cooling.
Construction format: L-Bracket format.
Power Density: 1.78Watts /Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and $+25^{\circ}C$ unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



In application

OUTPUT VOLTAGE / CURRENT RATINGS CHART

DUAL OUTPUT

MODEL NO.	MAIN VO1 @★		AUX.+VO2 • or -VO3 •	
	Typ.	Volt.	Typ.	Volt.
HVI51-29	9.0A	+3V	1.8A	+12.0V
HVI51-29n	9.0A	+3V	0.9A	-12.0V
HVI51-20	8.0A	+5V	1.0A	-5.0V
HVI51-21	8.0A	+5V	1.5A	+12.0V
HVI51-21n	8.0A	+5V	0.9A	-12.0V
HVI51-22	8.0A	+5V	1.2A	+15.0V
HVI51-22n	8.0A	+5V	0.8A	-15.0V
HVI51-23	8.0A	+5V	0.8A	+24.0V

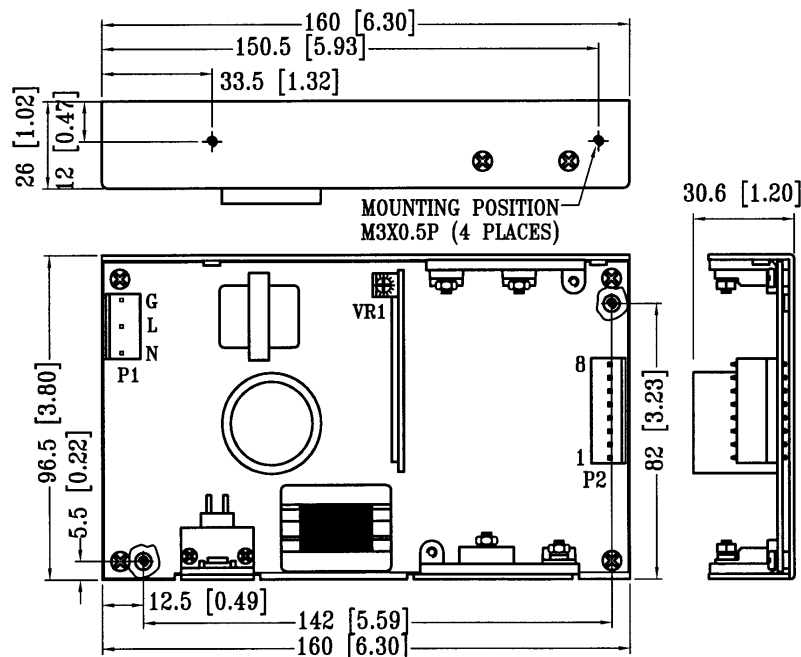
TRIPLE OUTPUT

MODEL NO.	MAIN VO1 @★		AUX. +VO2 • or †		AUX. -VO3 •	
	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.
HVI51-39	8.0A	3.0V	1.6A	+12.0V	0.6A	-12.0V
HVI51-30	6.0A	5.0V	1.5A	+12.0V	0.5A	-12.0V
HVI51-31	6.0A	5.0V	1.5A	+12.0V	1.0A	-5.0V
HVI51-32	6.0A	5.0V	0.8A	+24.0V	0.5A	-12.0V
HVI51-33	6.0A	5.0V	1.2A	+15.0V	0.5A	-15.0V

Symbol: "★" OVP built-in. "@" Adjustable. "†" Stacked on main O/P. "•" Installed with Post Regulator (P.R.).

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 374.0g (13.2 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			DUAL/TRIPLE OUTPUT			
	AC-LINE	AC-NEUTRAL	AC-GROUND	VO1	VO2	VO3	DC COM
CNTR & PIN#	P1-L	P1-N	P1-G	P2-1,2	P2-5	P2-7	P2-3,4,6

Mating connector: P1 Molex 5195 or 5239 series. P2 Molex 5195 or 5239 series.



UNIVERSAL INPUT AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 60-62 WATTS SINGLE, DUAL & TRIPLE OUTPUT HVI63 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- COMPACT 4"x2"x1" PCB FORMAT
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range typical 90-264Vac.
Rating 100 to 240Vac.
Input Connector: Molex connector or equivalent
Input Frequency: 47-63Hz.
Inrush Current: $\leq 12.0A$ rms at cold start at 230Vac.
Input Current: Typical 0.9A at 115Vac,
Typical 0.435A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB. 22 & FCC Class B.
Hold-up Time: Typical 11.2mS at 115Vac,
Typical 72.mS at 230Vac.
Leakage Current: Less than 0.42mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex connector or equivalent.
Output Wattage: Typical 60-62 watts.
Line Regulation: Typical 0.1%.
Load Regulation: Main VO1 typical $\pm 1.0\%$.
Aux. VO2 typical $\pm 3-8.0\%$.
Aux. VO3 typical $\pm 3.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in at main output VO1(Latch).
Adjustability: Not available.
Overload Protection (OLP):
Fully protected against outputs overload and short circuit.
Typical OLP set at 105-120% of rating output power.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 80-89.5%. (Various with output voltage)
Switching Frequency: 130KHz or 70KHz.
Circuit Topology: Fixed frequency forward circuit for triple output and 5V/3.3V of single output.
Fixed Frequency Flyback circuit for high voltage of single output.
Transient Response: Output voltage returns in less than 0.5mS following a 50% load change.
Safety Standard: Meet IEC 60950-1 Class I.
Power Density: 7.5-7.7Watts / Cubic Inch.
Operating Temperature: 0 to +50 °C under forced air flow for full load. Derate by 1.3W/°C from 40°C to 50°C.
Storage Temperature: -20 to +85°C.
Temperature Coefficient: Typical 0.04%/°C.
Cooling: At least 5CFM direct forward air flow is required to achieve full rating power.
Construction: 4"x2"x1" PCB format.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.
(2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1				
	Min.	Typ.	Volt.	Max.	Peak
HVI63-S033100	0.2A	10.00A	3.3V	10.00A	12.0A
HVI63-S050100	0.2A	10.00A	5.0V	10.00A	12.0A
HVI63-S120050	0.0A	5.00A	12.0V	5.00A	6.0A
HVI63-S150040	0.0A	4.00A	15.0V	4.00A	5.0A
HVI63-S240025	0.0A	2.50A	24.0V	2.50A	3.0A
HVI63-S480125	0.0A	1.25A	48.0V	1.25A	1.3A

DUAL OUTPUT

MODEL NO.	MAIN +VO1			AUX. +VO2 ■		
	Min.	Typ.	Volt.	Min.	Typ.	Volt.
HVI63-D0511	0.5A	4.0A	+5.1V	0.2A	3.5A	+12V

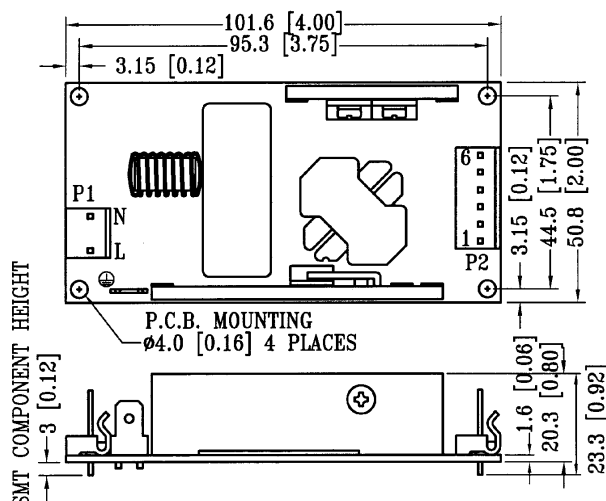
TRIPLE OUTPUT

MODEL NO.	MAIN +VO1					AUX. +VO2 ■					AUX. -VO3 ■				
	Min.	Typ.	Volt.	Max.	Peak	Min.	Typ.	Volt.	Max.	Peak	Min.	Typ.	Volt.	Max.	Peak
HVI63-T05011	0.5A	6.0A	+5.0V	8A	10A	0.1A	2.2A	+12V	3.0A	4A	0A	0.5A	-12V	0.5A	1A
HVI63-T050MI	0.5A	6.0A	+5.0V	8A	10A	0.1A	1.1A	+24V	1.5A	2A	0A	0.5A	-12V	0.5A	1A
HVI63-T050KK	0.5A	6.0A	+5.0V	8A	10A	0.1A	1.8A	+15V	2.5A	3A	0A	0.5A	-15V	0.5A	1A
HVI63-T033EI	0.5A	8.0A	+3.3V	8A	10A	0.1A	3.0A	+5V	3.0A	4A	0A	0.5A	-12V	0.5A	1A

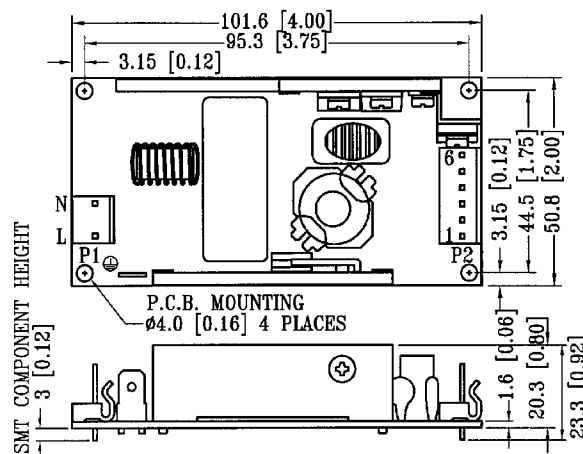
Symbol: " " OVP built-in. "■" Couple common choke.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 121g (4.27 Oz.)



SINGLE OUTPUT



DUAL/TRIPLE OUTPUT

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE OUTPUT		DUAL/TRIPLE OUTPUT			
	AC-L	AC-N	AC-G	VO1	DC COM	VO1	VO2	VO3	DC COM
CNTR/PIN#	P1-L	P1-N	G	P2-1,2	P2-3,4	P2-1,2	P2-6	P2-5	P2-3,4

Mating connector: P1,2 Molex # 5195 or 5239 series.

• **HiTRON**

UNIVERSAL INPUT AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 72 WATTS SINGLE, DUAL & TRIPLE OUTPUT HVI72 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- OPEN FRAME OR BOX FORMATS
- LOW COST COMMERCIAL GRADE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range 90-264Vac.

Rating 100 to 240Vac.

Input Connector: B-S or Molex connector or equivalent.

Input Frequency: 47-63Hz.

Inrush Current: Typical 25A peak at 230Vac.

Input Current: Typical 2.0A at 115Vac, 0.6 A at 230Vac.

Dielectric Withstand: Meet IEC 60950-1.

EMI: Meet CISPR PUB. 22 & FCC Class B.

No Load Operation: No damage.

Overshoot: No voltage spike while power ON/OFF.

Hold-up Time: Typical 20mS at 115Vac,

Typical 80mS at 230Vac.

Earth Leakage Current: Less than 0.5mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Rating Chart.

Output Connector: B-S or Molex connector or equivalent.

Output Wattage: Typical 72 Watts.

Line Regulation: Typical 0.1%.

Load Regulation: Main VO1 typ. $\pm 1.0\%$.

Aux. VO2 typ. $\pm 3.0\%$. (stacked on)

Aux. VO3/VO4 typ. $\pm 2.0\%$. (P.R.)

Noise & Ripple: Typical 1.0% peak to peak.

OVP: Built-in at main VO1 (Latch).

Adjustability: Available at main VO1.

LED Indicator: Output indicating.

Overload Protection (OLP):

Fully protected against output overload and short circuit.

OLP set at about 125-150% rating output wattage.

Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 72%. (various with output voltage)

Switching Frequency: Fixed frequency 45KHz.

Circuit Topology: Fixed Frequency Flyback Circuit.

Transient Response: Output voltage returns in less than
3mS following a 25% load change.

Safety Standard: Meet UL 60950-1/EN 60950-1 Class I.

Operating Temperature: 0 to +50°C.

Storage Temperature: -20 to +85°C.

Temperature Coefficient: Typical 0.03% /°C.

Cooling: Free air convection cooling.

Construction format: L-Bracket or enclosure box format.

Power Density: 2.0 Watts / Cubic Inch.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



In application.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1 @★	
	Typ.	Volt.
HVI72-10	14.0A	5.0V
HVI72-11	6.0A	12.0V
HVI72-12	4.8A	15.0V
HVI72-13	3.0A	24.0V
HVI72-14	2.3A	32.0V
HVI72-15	1.6A	48.0V
HVI72-19	14.0A	3.3V

TRIPLE OUTPUT

MODEL NO.	MAIN VO1 @★		AUX. +VO2 †		AUX. ±VO3 ●	
	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.
HVI72-30	7.0A	+5V	2.0A	+12V	1.0A	12V
HVI72-31	7.0A	+5V	2.0A	+12V	1.0A	5V
HVI72-32	7.0A	+5V	1.0A	+24V	1.0A	12V
HVI72-33	7.0A	+5V	1.5A	+15V	1.0A	15V
HVI72-050060-BG	6.0A	+5V	2.0A	+12V	1.0A	-12V

QUAD OUTPUT

MODEL NO.	MAIN VO1 @★		AUX. +VO2 †		AUX. ±VO3 ●		AUX. -VO4 ●	
	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.
HVI72-40	6.5A	+5V	2.0A	+12V	0.5A	12V	0.5A	-12V
HVI72-41	6.5A	+5V	2.0A	+12V	1.0A	5V	1.0A	-5V
HVI72-42	6.5A	+5V	1.0A	+24V	0.5A	12V	0.5A	-12V
HVI72-43	6.5A	+5V	1.6A	+15V	0.5A	15V	0.5A	-15V
HVI72-43A	5.0A	+5V	1.5A	+15V	1.0A	-15V	1.0A	-5V

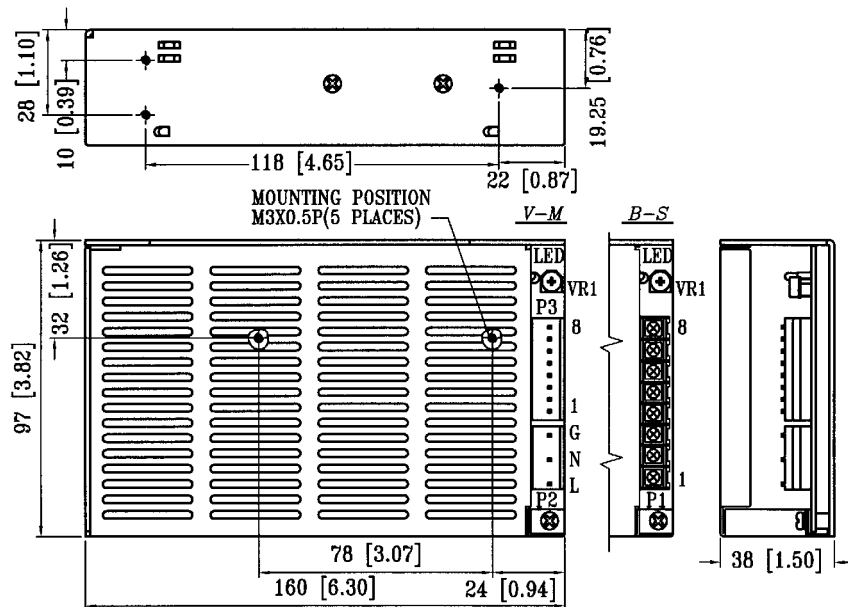
Symbol: "★" OVP built-in. "@" Adjustable. "†" Stacked on main O/P. "●" Installed with Post Regulator (P.R.).

Remark: At least 20% of typical main output current is required to maintain stated regulation.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: L-B 396.0g (13.97 Oz.)

Box 489.0g (1.25 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE OUTPUT		TRIPLE / QUAD OUTPUT				
	AC-LINE	AC-NEUTRAL	AC-GROUND	VO1	DC-COM	VO1	VO2	VO3	VO4	DC-COM
B-S CNTR & PIN#	P1-1	P1-2	P1-3	P1-5	P1-4	P1-8	P1-6	P1-5	P1-4	P1-7
V-M CNTR & PIN#	P2-L	P2-N	P2-G	P3-4,5,6	P3-1,2,3	P3-7,8	P3-3	P3-2	P3-1	P3-4,5

Mating connector: P2 Molex 5195 or 5239 series.



UNIVERSAL INPUT AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 100 WATTS SINGLE, DUAL, TRIPLE & QUAD OUTPUT HVI102 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- LOW-PROFILE U-BRACKET FORMAT
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Range 90-264Vac.
Rating 100 to 240Vac.
Input Connector: Molex connector or equivalent.
Input Frequency: 47-63Hz.
Inrush Current: $\leq 30.6A$ peak at 230Vac.
Input Current: Typical 1.8A at 115Vac,
Typical 0.8A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB. 22 & FCC Class B.
Hold-up Time: Typical 11ms at 115Vac,
Typical 60ms at 230Vac.
Power Fail Signal: Installed.
Leakage Current: Less than 0.4mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex connector or equivalent.
Output Wattage: Typical 100 Watts.
Line Regulation: Typical 0.1%.
Load Regulation: Main VO1 typical $\pm 1-2\%$.
Aux.VO2/VO3/VO4 typical $\pm 3-5\%$ (Common choke).
Noise & Ripple: Typ. 1.0% peak to peak.
OVP: Built-in at main output.
UVP: Built-in at main output.
Remote Sensing: Installed in main output VO1.
Adjustability: Available at main output VO1.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 80-82%. (various with output voltage)
Switching Frequency: 63KHz.
Circuit Topology: Fixed Frequency Forward circuit.
Transient Response: Output voltage returns in
less than 3ms following
a 25% load change.
Safety Standard: Meet IEC 60950-1/UL 60950-1 Class I.
Power Density: 4.10Watts / Cubic Inch.

Operating Temperature: 0 to +50 °C under forced air flow
for full load.
Storage Temperature: -20 to +85°C.
Temperature Coefficient: Typical 0.04%/°C.
Cooling: At least 25CFM direct forward air flow is required to
achieve full rating power.
Construction: U-bracket format.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1 Typ.	@# Volt.
HVI102-19	25.0A	3.3V
HVI102-10	20.0A	5.0V
HVI102-11	8.5A	12.0V
HVI102-12	6.8A	15.0V
HVI102-13	4.2A	24.0V
HVI102-13B	3.0A	24.0V
HVI102-14	3.6A	28.0V
HVI102-15	2.8A	36.0V
HVI102-16	2.0A	48.0V
HVI102-17	1.3A	58.0V

DUAL OUTPUT

MODEL NO.	MAIN VO1 Typ.	@# Volt.	AUX. ±VO2 ■ Typ.	Volt.	MODEL NO.
HVI102-20	10.0A	+5.0V	10.0A	-5.0V(+)	(HVI102-20P)
HVI102-21	10.0A	+5.0V	4.0A	-12.0V(+)	(HVI102-21P)
HVI102-22	10.0A	+5.0V	3.0A	-15.0V(+)	(HVI102-22P)
HVI102-23	10.0A	+5.0V	2.0A	-24.0V(+)	(HVI102-23P)
HVI102-23E	7.5A	+6.5V	2.0A	-24.0V(+)	(HVI102-23EP)
HVI102-24	4.0A	+12.0V	4.0A	-12.0V(+)	(HVI102-24P)
HVI102-25	3.4A	+15.0V	3.4A	-15.0V(+)	(HVI102-25P)
HVI102-290	10.0A	+3.3V	10.0A	-5.0V(+)	(HVI102-290P)
HVI102-291	12.0A	+3.3V	4.0A	-12.0V(+)	(HVI102-291P)
HVI102-292	12.0A	+3.3V	3.0A	-15.0V(+)	(HVI102-292P)
HVI102-293	12.0A	+3.3V	2.0A	-24.0V(+)	(HVI102-293P)

TRIPLE OUTPUT

MODEL NO.	MAIN +VO1 Typ.	@# Volt.	AUX. +VO2 ■ Typ.	Volt.	AUX. -VO3 ■ Typ.	Volt.
HVI102-30	10.0A	+5.0V	3.4A	+12.0V	0.6A	-12.0V
HVI102-31	10.0A	+5.0V	3.4A	+12.0V	0.6A	-5.0V
HVI102-32	10.0A	+5.0V	1.5A	+24.0V	0.6A	-12.0V
HVI102-33	10.0A	+5.0V	2.5A	+15.0V	0.6A	-15.0V
HVI102-390B	18.0A	+3.3V	4.0A	+5.0V	1.0A	+12.0V
HVI102-393	12.0A	+3.3V	3.4A	+12.0V	0.6A	-12.0V
HVI102-394	12.0A	+3.3V	2.8A	+15.0V	0.6A	-15.0V

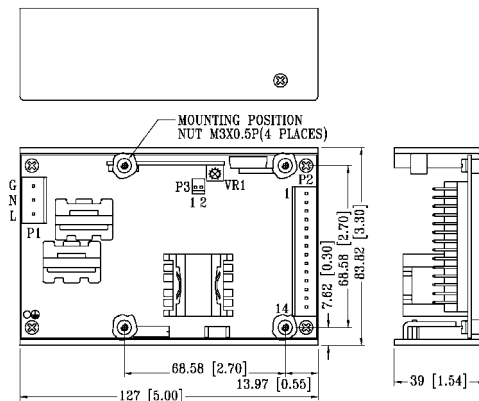
QUAD OUTPUT

MODEL NO	MAIN +VO1 Typ.	@# Volt.	AUX. +VO2 ■ Typ.	Volt.	AUX. -VO3 ■ Typ.	Volt.	AUX. VO4 ■ Typ.	Volt.
HVI102-40	10.0A	+5.0V	3.0A	+12.0V	0.60A	-12.0V	0.60A	12.00V
HVI102-41	10.0A	+5.0V	3.0A	+12.0V	0.60A	-5.0V	0.60A	5.00V
HVI102-42	10.0A	+5.0V	1.5A	+24.0V	0.60A	-12.0V	0.60A	12.00V
HVI102-43	10.0A	+5.0V	2.5A	+15.0V	0.60A	-15.0V	0.60A	12.00V
HVI102-44	10.0A	+5.0V	1.5A	+24.0V	0.50A	-15.0V	0.50A	15.00V
HVI102-44E	3.0A	+5.0V	1.5A	+24.0V	0.50A	-15.0V	0.50A	15.00V
HVI102-490	12.0A	+3.3V	3.0A	+12.0V	0.60A	-12.0V	0.60A	5.00V
HVI102-490E	10.0A	+5.0V	7.5A	+3.3V	0.25A	-12.0V	0.25A	12.00V
HVI102-490B	12.0A	+3.3V	4.0A	+5.0V	0.60A	-12.0V	0.60A	12.00V
HVI102-491	12.0A	+3.3V	2.5A	+15.0V	0.60A	-15.0V	0.60A	5.00V
HVI102-491B	12.0A	+3.3V	4.0A	+5.0V	0.60A	-15.0V	0.60A	15.00V
HVI102-492	12.0A	+3.3V	3.0A	+12.0V	0.60A	-12.0V	0.60A	12.00V
HVI102-493	12.0A	+3.3V	2.5A	+15.0V	0.60A	-15.0V	0.60A	12.00V
HVI102-494	12.0A	+3.3V	1.5A	+24.0V	0.60A	-12.0V	0.60A	12.00V
HVI102-495	7.0A	+3.3V	1.0A	+5.0V	1.00A	-5.0V	2.50A	24.00V
HVI102-496E	15.0A	+3.3V	1.1A	+5.0V	1.25A	-48.0V	0.30A	6.25V

Symbol: " " OVP built-in. "@# Adjustable. "■" Remote sensing. "■" Coupled choke. "●" Installed with Post Regulator. " " Floating(or isolated)output.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 448.5g (15.82 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	AC INPUT			SINGLE OUTPUT		DUAL OUTPUT			TRIPLE OUTPUT				QUAD OUTPUT					ASSORTED SIGNAL			
ASSIGNMENT	AC-L	AC-N	AC-G	VO1	DC-COM	VO1	VO2	DC-COM	VO1	VO2	VO3	DC-COM	VO1	VO2	VO3	+VO4	-VO4	DC-COM	-S	+S	PFS
CTR & PIN #	P1-L	P1-N	P1-G	P2-1,2,3,4,5	P2-6,7,8,9,10,11	P2-1,2,3	P2-8,9	P2-4,5,6,7,10,13	P2-1,2,3	P2-8,9	P2-11	P2-4,5,6,7,10,13	P2-1,2,3	P2-8,9	P2-11	P2-14	P2-13	P2-4,5,6,7	P3-1	P3-2	P2-12

Mating connector: P1,2,3 Molex # 5195 or 5239 series.



- ACCOMMODATE UNIVERSAL AC INPUT
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- PCB OR U-BRACKET FORMAT
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 CLASS B
- CE MARKING COMPLIANCE



OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	MAIN VO1 ★@		
	Convection Cooling	Volt.	30CFM air cooling
HVP93-S033250	12.0A	3.3V	25.0A
HVP93-S050200	10.0A	5.0V	20.0A
HVP93-S120085	4.2A	12.0V	8.5A
HVP93-S150068	3.4A	15.0V	6.8A
HVP93-S240043	2.1A	24.0V	4.3A
HVP93-S280038	1.8A	28.0V	3.8A
HVP93-S360030	1.5A	36.0V	3.0A
HVP93-S480022	1.2A	48.0V	2.2A

DUAL OUTPUT

MODEL NO.	MAIN VO1 ★@			AUX. VO2 ■ or ●		
	Convection Cooling	Volt.	30CFM air cooling	Convection Cooling	Volt.	30CFM air cooling
HVP93-D050I	6.0A	+5.0V	10.0A	2.0A	+12.0V	4.0A
HVP93-D050K	6.0A	+5.0V	10.0A	1.6A	+15.0V	3.2A
HVP93-D050M	6.0A	+5.0V	10.0A	1.0A	+24.0V	2.0A
HVP93-D033I	8.0A	+3.3V	12.0A	2.0A	+12.0V	4.0A
HVP93-D033K	8.0A	+3.3V	12.0A	1.6A	+15.0V	3.2A
HVP93-D033M	8.0A	+3.3V	12.0A	1.0A	+24.0V	2.0A

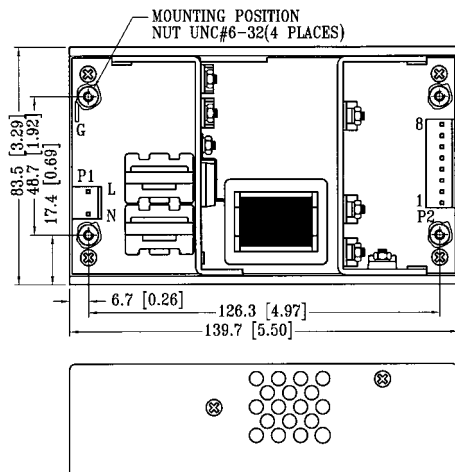
TRIPLE OUTPUT (PCB VERSION)

MODEL NO.	MAIN VO1★@			AUX. VO2 ● or ■			AUX. VO3 ●		
	Convection Cooling	Volt.	30CFM air cooling	Convection Cooling	Volt.	30CFM air cooling	Convection Cooling	Volt.	30CFM air cooling
HVP93-T050II	4.0A	+5.0V	10.0A	1.5A	+12.0V	3.0A	1.0A	-12.0V	1.5A
HVP93-T050IE	4.0A	+5.0V	10.0A	1.5A	+12.0V	3.0A	1.0A	-5.0V	1.5A
HVP93-T050MI	4.0A	+5.0V	10.0A	0.8A	+24.0V	1.5A	1.0A	-12.0V	1.5A
HVP93-T050KK	4.0A	+5.0V	10.0A	1.2A	+15.0V	2.4A	0.8A	-15.0V	1.2A
HVP93-T033II	5.0A	+3.3V	12.0A	1.5A	+12.0V	3.0A	1.0A	-12.0V	1.5A
HVP93-T033KK	5.0A	+3.3V	12.0A	1.2A	+15.0V	2.0A	0.8A	-15.0V	1.2A

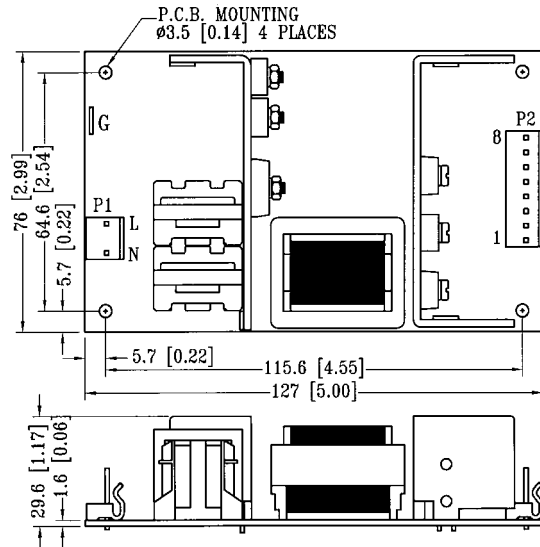
Symbol: " " OVP built-in "@" Adjustable "#" Remote sensing "●" Post Regulator "■" couple common choke
 " " Installed with OR-ing diodes.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: PCB 358.0g(12.6 Oz.)
 U-Bracket 541.0g(19.0 Oz.)



U-Bracket FORMAT



PCB FORMAT

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			DUAL OUTPUT		
	AC-L	AC-N	AC-G	VO1	VO2	DC COM
CNTR & PIN	L	N	GND	P2-7,8	P2-1	P2-2,3, 4,5,6

Mating connector: Molex 5195 or 5239 series

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			DUAL OUTPUT			TRIPLE OUTPUT		
	AC-L	AC-N	AC-G	VO1	VO2	DC COM	VO1	VO2	VO3
CNTR & PIN	P1-L	P1-N	G	P2-1,2	P2-6,7	P2-3, 4,5	P2-2,3	P2-7	P2-1

Mating connector: Molex 5195 or 5239 series



UNIVERSAL INPUT HARMONIC CORRECTION (PFC) AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 100 WATTS SINGLE OUTPUT HVP103 SERIES



FEATURES:

- 5" X 3" X 1" COMPACT SIZE & HIGH POWER DENSITY
- ACCOMMODATE UNIVERSAL AC SOURCES
- MEET IEC 61000-3-2 HARMONIC CORRECTION (PFC)
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET EN 55022 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: V-M connector & GND tag.
Input Frequency: 47-63Hz.
Inrush Current: Typical 26A at 230Vac.
Input Current: Typical 1.0A at 115Vac, 0.5A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet EN 55022 & FCC Class B.
Hold-up Time: Typical 25mS at 115Vac & 230Vac.
Power Factor & Harmonic Correction:
 Meet IEC 61000-3-2, PF typ. 0.97-0.99 at full load.
Turn-on Delay/Rise Time: 2 Sec./5mS.
Earth Leakage Current: Less than 0.5mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Power: 100W continuous. Various with output voltage & under forced air cooling.
Output Connector: V-M Molex 0.156" connector for <12A output. M-T Mini Terminal Block for ≥12A output.
Line Regulation: Typical 0.1%.
Load Regulation: Typical ± 1.0%.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in.
Adjustability: Available.
Remote Sensing: Available.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 125-150% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 75-84%.
 various with output voltage.
Switching Frequency: PWM 175K Hz. (PFC: 75K Hz.)
Circuit Topology: Fixed Frequency Forward Circuit.
Transient Response: 0.5mS following 25% load change.
Safety Standard: IEC 60950-1/UL 60950-1 Class I.
Power Density: 6.73 Watts / Cubic Inch.

Operating Temperature: 0 to +50°C under 20 CFM forced air cooling for full load.
Storage Temperature\Humidity: -20 to +85°C, 95% non-condensing.
Temperature Coefficient: ±0.04% /°C.
Cooling: At least 20CFM moving air is required to achieve full rating power, ≥+50°C in a confined area.
Construction: L-bracket format.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.
 (2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

DEFINED OUTPUT VOLTAGE (Vdc)	OUTPUT VOLTAGE (Vdc) / CURRENT (A)
$3.3\text{Vdc} \leq \text{Any Voltage} \leq 12.0\text{Vdc}$	3.3-5.0Vdc/ 20.0-18.0A, 5.1-6.0Vdc/ 17.8-15.0A, 6.1-8.0Vdc/ 14.8-11.0A, 8.1-10.0Vdc/ 10.9-9.5A, 10.1-10.9Vdc/ 9.4-9.0A, 11.0-12.0Vdc/ 9.0-8.5A.
$12.0\text{Vdc} < \text{Any Voltage} \leq 24.0\text{Vdc}$	12.1-14.0Vdc/8.4-7.3A, 14.1-16.0Vdc/7.3-6.4A, 16.1-18.0Vdc/6.3-5.7A, 18.1-20.0Vdc/5.6-5.1A, 20.1-22.0Vdc/5.1-4.6A, 22.1-24.0Vdc/4.6-4.2A

SINGLE OUTPUT *(Model No. for example)*

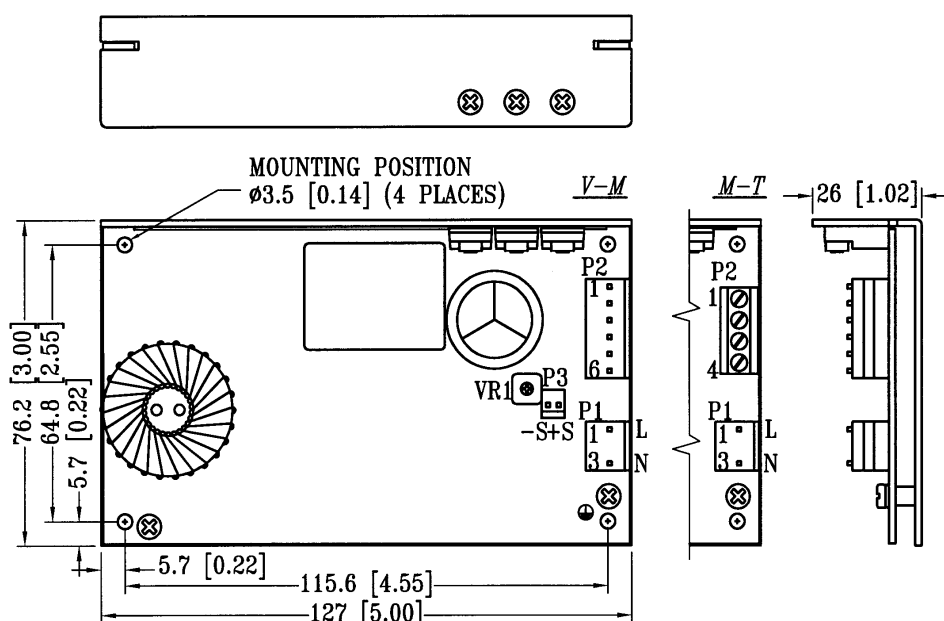
MODEL NO.	MAIN O/P VO1 @#				CONTINUOUS POWER
	Min.	Typ.	Volt.	Peak	
HVP103-033200	0.8A	20.0A	3.3V	25.0A	66W
HVP103-050180	0.6A	18.0A	5.0V	25.0A	90W
HVP103-120085	0.0A	8.5A	12.0V	11.0A	102W
HVP103-150068	0.5A	6.8A	15.0V	8.5A	103W
HVP103-240042	0.3A	4.2A	24.0V	5.0A	100W

Symbol: " " OVP built-in. "@" Adjustable. "#" Remote sensing.

Remark: Peak output, less than 60sec. with 10% duty cycle.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 319.0g (11.25 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT CONNECTOR & PIN #	AC INPUT			SINGLE OUTPUT		
	LINE	NEUTRAL	GROUND	VO1	DC-COM	Remote Sensing
P1-1	P1-1	P1-3	P1-5	P2-1,2(12A) P2-1,2,3(<12A)	P2-3,4(12A) P2-4,5,6(<12A)	P3-1(+S) P3-2(-S)

Mating connector: P1 & P2 Molex # 5195 or 41695 equivalent.

P3 Molex # 5051 series or equivalent.



UNIVERSAL INPUT HARMONIC CORRECTION (PFC) AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 150 WATTS SINGLE & MULTI-OUTPUT HVP149 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC SOURCES
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- DUAL CONVERTER ARCHITECTURE
- +5V STAND-BY GREEN POWER
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: V-M (Molex 5273) connector.
Input Frequency: 47-63Hz.
Inrush Current: Typical $\leq 30.6A$ at 230Vac.
Input Current: Typical 2.0A at 115Vac, 0.96A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB. 22 & FCC Class B.
Hold-up Time: Typical 20ms at 115Vac & 230Vac.
Power Fail Signal: Installed.
DC OK Signal: Installed in two main outputs.
Remote Inhibit: Installed. Enable active low.
Power Factor & Harmonic Correction:
 Meet IEC 61000-3-2, PF typical 0.99 at full load.
Over Temperature Protection: By thermostat.
Earth Leakage Current: Less than 0.75mA.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: B-S, V-M (Molex 5273),
 X-M (Molex 5268) connectors.
Output Wattage: Typical 150W with 30 CFM forced
 air cooling.
Line Regulation: Typical 0.1%.
Load Regulation: Main VO1 & Aux. VO2 typical $\pm 1-1.5\%$.
 Main VO3 & Aux. VO4 typical $\pm 5.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Installed in VO1, VO2 & VO3 (Latch).
Remote Sensing: Installed in O/P VO1 & VO2.
Adjustability: Available at VO1, VO2 and VO3.
Load Sharing: Active current sharing circuit available at
 VO1 & VO2 rail.
Overload Protection (OLP): Fully protected against
 output overload and short circuit.
 Consult the factory for the OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 70-73.7%. (various with output voltage)
Switching Frequency: Fixed frequency at 70K Hz.
Circuit Topology: Dual converter architecture.
 1st, forward circuit for VO1 & VO2 rails.
 2nd, fixed-frequency flyback circuit for VO3 & VO4 rails.
Transient Response: Output voltage returns in less
 than 1mS following a 25% load change.
Safety Standard: UL 60950-1/EN 60950-1 Class I.
Power Density: 3.0 Watts / Cubic Inch.

Operating Temperature: 0 to +50°C under forced air
 cooling for half load.
Storage Temperature: -55 to +85°C.
Temperature Coefficient: 0 to +70°C (after 15 minutes
 warm-up) typical $\pm 0.02-0.05\%/^{\circ}C$.
Cooling: 25-30 CFM airflow is required to deliver the full
 power. 150W.
Construction: U-bracket construction format.
Industrial Grade.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT (Under forced air cooling)

MODEL NO.	MAIN VO1 @★#= Typ. Volt.
HVP149-S033350	35.00A +3.3V
HVP149-S050300	30.00A +5.0V
HVP149-S120150	15.00A +12.0V
HVP149-S240075	7.50A +24.0V
HVP149-S480375	3.75A +48.0V

DUAL OUTPUT (Under forced air cooling)

MODEL NO.	MAIN VO1 @★#= Typ. Volt.	AUX. VO2 @★▲#= Typ. Volt.
HVP149-20	30A +5.0V	10A +5.0V
HVP149-21	30A +5.0V	5A +12.0V
HVP149-22	30A +5.0V	5A +15.0V
HVP149-23	30A +5.0V	3A +24.0V
HVP149-290A	30A +5.0V	15A +3.3V
HVP149-290B	30A +3.3V	8A +5.0V
HVP149-291	30A +3.3V	5A +12.0V
HVP149-292	30A +3.3V	4A +15.0V
HVP149-293	30A +3.3V	3A +24.0V

TRIPLE OUTPUT (Under forced air cooling)

MODEL NO.	MAIN VO1 @★#= Typ. Volt.	AUX. VO2 @★#▲ Typ. Volt.	MAIN ±VO3 @★◇ Typ. Volt.
HVP149-30	30.0A +5.0V	4.0A +12.0V	3.0A 12.0V
HVP149-31	30.0A +5.0V	4.0A +12.0V	6.0A 5.0V
HVP149-T050IM	17.5A +5.0V	4.0A +12.0V	2.0A 24.0V
HVP149-32	30.0A +5.0V	2.5A +24.0V	3.0A 12.0V
HVP149-33	30.0A +5.0V	4.0A +15.0V	3.0A 15.0V
HVP149-390A	30.0A +5.0V	12.0A +3.3V	3.0A 12.0V
HVP149-390B	30.0A +3.3V	8.0A +5.0V	3.0A 12.0V
HVP149-391A	30.0A +5.0V	12.0A +3.3V	3.0A 15.0V
HVP149-391B	30.0A +3.3V	8.0A +5.0V	3.0A 15.0V

QUAD OUTPUT (Under forced air cooling)

MODEL NO.	MAIN VO1 @★#= Typ. Volt.	AUX. VO2 @★#▲ Typ. Volt.	MAIN ±VO3 @★◇ Typ. Volt.	AUX. ±VO4 ◇(● or) Typ. Volt.
HVP149-40	30A +5.0V	8.0A +12.0V	2.0A 12.0V	2.0A 12.0V
HVP149-41	30A +5.0V	8.0A +12.0V	4.0A 5.0V	3.0A 5.0V
HVP149-Q050IIE	30A +5.0V	8.0A +12.0V	3.0A 12.0V	2.0A 5.0V
HVP149-42	30A +5.0V	4.0A +24.0V	2.0A 12.0V	2.0A 12.0V
HVP149-43	30A +5.0V	6.0A +15.0V	2.0A 12.0V	1.5A 15.0V
HVP149-490A	30A +5.0V	15.0A +3.3V	2.0A 12.0V	2.0A 12.0V
HVP149-490B	30A +3.3V	15.0A +5.0V	2.0A 12.0V	2.0A 12.0V
HVP149-491A	30A +5.0V	15.0A +3.3V	1.5A 15.0V	1.5A 15.0V
HVP149-491B	30A +3.3V	15.0A +5.0V	1.5A 15.0V	1.5A 15.0V
HVP149-Q025DIE	30A +2.5V	15.0A +3.3V	4.0A 12.0V	2.0A 5.0V

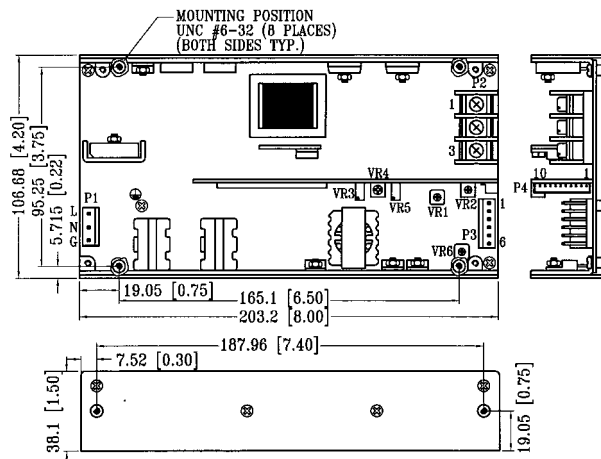
Symbol: "★" OVP built-in. "@" Adjustable. "◇" Floating but not isolated output. "●" Installed with Post Regulator (P.R.). "#" Remote sensing.

"▲" Installed with magnetic amplifier. "±" Positive or Negative selectable (factory set). "=" Active circuit current sharing. "||" Double Feedback.

Remark: VO1 and VO2 total continual output current ≤ 30A. VO3 and VO4 total continual output current ≤ 5A. Max. total output power: 150W.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 960.5g (33.88 Oz)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	AC INPUT			SINGLE/DUAL/ TRIPLE/ QUAD OUTPUT								ASSORTED SIGNALS									
ASSIGNMENT	AC-LINE	AC-NEUTRAL	AC-GROUND	+VO1	VO2	DC-COM	VO3	-VO3	VO4	-VO4	DC-COM	ENABLE	POWER FAIL	DC-OK	+5V.S.B.	VO2≡	VO2+S	VO1≡	VO1/VO2-S	VO1+S	
CNTR & PIN#	P1-L	P1-N	P1-G	P2-2	P2-3	P2-1	P3-1,2	P3-3,4	P3-5	P3-6	P4-1	P4-2	P4-3	P4-4	P4-5	P4-6	P4-7	P4-8	P4-9	P4-10	

Mating connector P1 & P3: Molex 5195 or 5239 series, P4: Molex 5264 series or equivalent.

HiTRON

UNIVERSAL INPUT HARMONIC CORRECTION(PFC) AC-DC INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 200 WATTS RESONANT TRIPLE OUTPUT HIRP200 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- 5" x 3" COMPACT SIZE IN 1U HEIGHT
- 5V STAND-BY & 12V FAN OUTPUTS
- RESONANT DESIGN CIRCUIT
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS A
- CE MARKING COMPLIANCE
- POWER DENSITY AS HIGH AS 9.95W/C.I.

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: V-M connector.
Input Frequency: 47-63Hz.
Inrush Current: Typical 11.4-11.7Arms at 230Vac.
Input Current: Typical 1.95-2.16A at 115Vac,
Typical 1.0-1.15A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB. 22 & FCC Class A.
Hold-up Time: Typical 16-18mS at 115Vac & 230Vac.
Power Fail Signal: Installed.
Remote ON/OFF: Installed.
Power Factor & Harmonic Correction:
Meet IEC 61000-3-2, PF typical 0.95 at full load.
Leakage Current: Less than 0.75-0.79mA.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: V-H connectors.
Output Wattage: Max. 200W.
Line Regulation: Typical $\pm 0.1\%$.
Load Regulation: VO1 & VO3 typical $\pm 1\%$.
VO2 typical $\pm 3.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Installed in VO1 & VO2 (Latch).
Adjustability: Available at VO1.
DC OK Signal: Installed.
Overload Protection (OLP): Fully protected against
output overload and short circuit. Typical 115-130% at
115Vac. Consult the factory for the special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 87-92%. (various with output voltage)
Switching Frequency: 100-105K Hz.
Circuit Topology: ZVS circuit.
Transient Response:
+12V and +24V voltage returns within 1mS following
a 25% load change.
+48V voltage returns within 1.75mS following
a 25% load change.

Operating Temperature: 0 to +50°C at full load
with specified air flow.
Storage Temperature: 0 to +85°C.
Cooling: At least 400LFM airflow is required to deliver
the full power. 200W.
Construction: PCB format.
Power Density: 9.95 Watts / Cubic Inch.
Safety Standard: Meet UL 60950-1/EN 60950-1 Class I.

NOTE: (1) All measurement are at nominal input, full load and +26°C unless otherwise specifications.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



In application.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

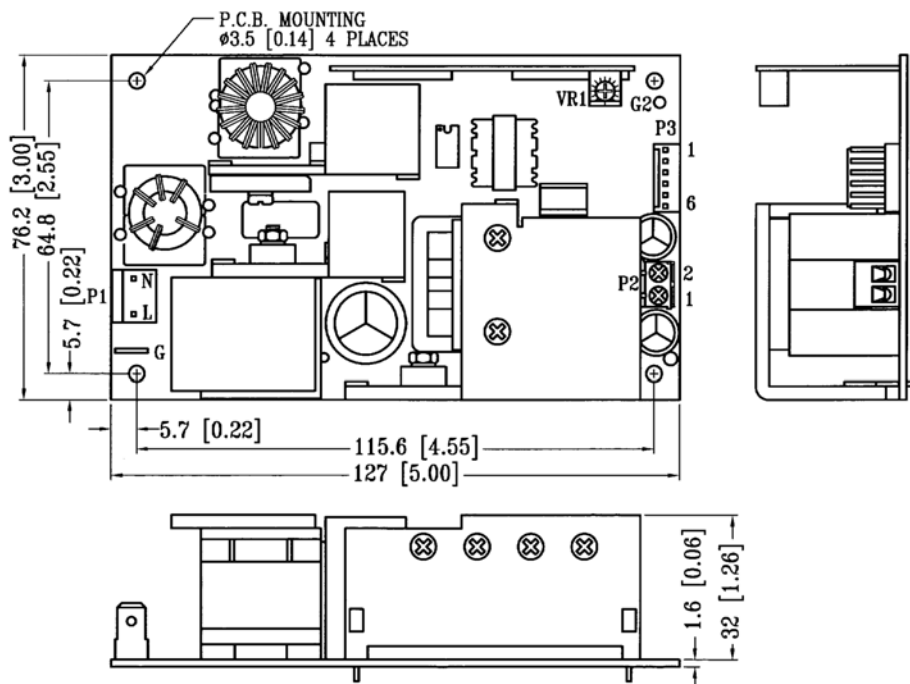
TRIPLE OUTPUT (Under forced air cooling 400LFM)

MODEL NO.	MAIN VO1 @			VO2 (Fan output)			VO3 (Standby)		
	Max.	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Typ.	Volt.
HIRP200-T120IE	16.70A	16.6A	+12V	1.0A	0.5A	+12.0V	0.1A	0.1A	+5V
HIRP200-T240IE	8.30A	8.3A	+24V	1.0A	0.5A	+12.0V	0.1A	0.1A	+5V
HIRP200-T480IE	4.16A	4.0A	+48V	1.0A	0.5A	+12.0V	0.1A	0.1A	+5V

Symbol: “ ” OVP built-in. “@” Adjustable.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 500.0g (17.6 Oz)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			TRIPLE OUTPUT						
	AC-LINE	AC-NEUTRAL	AC-GROUND	+VO1	DC-COM	+VO2	+5VSB	DC-COM	POWER FAIL	REMOTE CONTROL
CNTR & PIN#	P1-2	P1-1	G	P2-2	P2-1	P3-5,6	P3-3	P3-4	P3-1	P3-2

Remark: Short P3-2 and P3-3 to enable the PSU.



UNIVERSAL INPUT HARMONIC CORRECTION (PFC) AC-DC N+1 REDUNDANCY AND ACTIVE CURRENT SHARING INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES QUAD OUTPUT 210 WATTS HVP210 SERIES



FEATURES:

- ACCOMMODATE UNIVERSAL AC SOURCES
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- HIGH EFFICIENCY BY SYNCHRONOUS RECTIFIER
- N+1 REDUNDANCY
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 & FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac with PFC.
Input Connector: V-M (Molex 5273) connector.
Input Frequency: 47-63Hz.
Inrush Current: Typical 29A at 115 & 230Vac.
Input Current: Typical 2.4A at 115Vac, 1.2A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB. 22 & FCC Class B.
Hold-up Time: Typical 15mS at full load.
Power Fail Signal: Installed.
Remote Inhibit: Installed.
Power Factor & Harmonic Correction:
 Meet IEC 61000-3-2, PF typical 0.99 at full load.
Over Temp. Protection (OTP): By thermostat.
Earth Leakage Current: Less than 0.75mA.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: B-S, V-M (Molex # 5273),
 X-M (Molex # 5268) connectors.
Output Wattage: Typical 210 Watts under 30 CFM forced
 air cooling. If convection, typ. 150W.
Line Regulation: Typical 0.1%.
Load Regulation: Main VO1 typical $\pm 0.5\%$.
 Aux. VO2, VO3 & VO4 typical $\pm 1.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Installed in VO1 & VO2.
Remote Sense: Installed in VO1 & VO2.
Adjustability: Available at all outputs.
Load Sharing: Active current sharing circuit available at
 VO1 & VO2 rail.
Synchronous Rectifier: Installed in VO1 & VO2.
DC OK Signal: Installed in VO1 & VO2.
Over Current Protection: Installed in all output.
Overload Protection (OLP): Fully protected against output
 overload and short circuit.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 77-80%. (various with the output voltage)
Switching Frequency: Fixed frequency at 115K Hz.
Circuit Topology: PWM fixed-frequency forward
 converter circuit.
Transient Response: Output voltage returns in about
 0.4mS following a 25% load change.
Safety Standard: UL 60950-1/EN 60950-1 Class I.
Power Density: 4.16 Watts / Cubic Inch.
Operating Temperature: 0 to +50°C under 30 CFM
 forced air cooling.
Storage Temperature: -55 to +85°C.
Temperature Coefficient: 0 to +70°C (after 15 minutes
 warm-up) typ. $\pm 0.02-0.05\%$ / °C.
Cooling: At least 30 CFM air flow is required to deliver
 the full power 210W.
Construction: U-bracket construction format.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.
 (2) Due to requests in market and advances in technology, specifications subject to change without notification.



In application

OUTPUT VOLTAGE / CURRENT RATINGS CHART

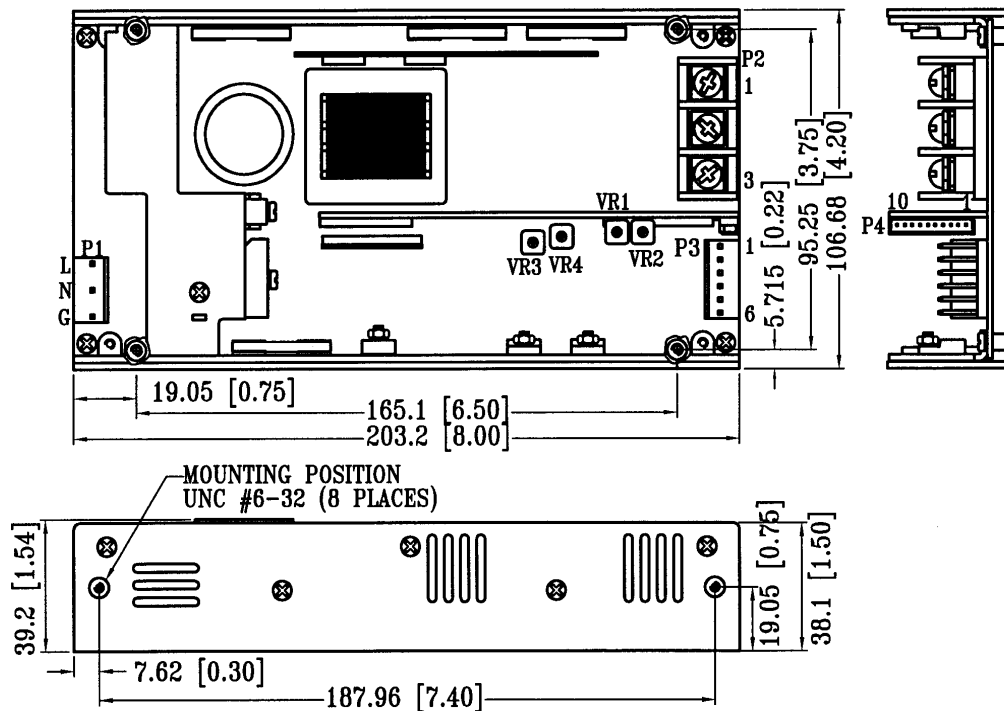
QUAD OUTPUT (Under 30 CFM forced air cooling)

MODEL NO.	MAIN +VO1 @ ≡ #		AUX. +VO2 @ ▲≡ #		AUX. VO3 @▲		AUX. VO4 @▲	
	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.
HVP210-Q033BII	22.0A	+3.3V	22.0A	+1.8V	4.0A	12.0V	4.0A	12.0V
HVP210-Q050BII	22.0A	+5.0V	15.0A	+1.8V	3.0A	12.0V	3.0A	12.0V
HVP210-Q033CII	22.0A	+3.3V	20.0A	+2.5V	4.0A	12.0V	4.0A	12.0V
HVP210-Q050CII	20.0A	+5.0V	15.0A	+2.5V	3.0A	12.0V	3.0A	12.0V
HVP210-Q050DII	20.0A	+5.0V	15.0A	+3.3V	3.0A	12.0V	3.0A	12.0V

Symbol: " " OVP built-in. "@Adjustable. " " Floating output. "▲" Installed with magnetic amplifier. "# Remote sensing.
 "≡" 3rd-wire current sharing. " " Synchronous Rectifier.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 1,000.0g (2.2 lb.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			QUAD OUTPUT							ASSORTED SIGNALS								
	AC-L	AC-N	AC-G	+VO1	DC COM	VO2	VO3	-VO3	VO4	-VO4	DC COM	Disable	Power Fail	DC OK	VO2≡	+VO2#	VO1≡	-VO1,2#	+VO1#
CONNECTOR & PIN#	P1-L	P1-N	P1-G	P2-2	P2-1	P2-3	P3-1,2	P3-3,4	P3-5	P3-6	P4-1	P4-2	P4-3	P4-4	P4-6	P4-7	P4-8	P4-9	P4-10

Mating connector: P1,3 Molex # 5195 or 5239 series.
 P4 Molex # 5264 series or equivalent.



AUTO-RANGING INPUT HARMONIC CORRECTION (PFC) AC-DC N+1 REDUNDANCY AND ACTIVE CURRENT SHARING INTERNAL OPEN FRAME SWITCHING POWER SUPPLIES 350 WATTS SINGLE & MULTI-OUTPUT HVP350 SERIES



FEATURES:

- ACCOMMODATE WORLD-WIDE AC SOURCES
- MEET IEC61000-3-2 HARMONIC CORRECTION
- N+1 REDUNDANCY & CURRENT SHARING
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB. 22 CLASS A
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Auto-ranging input 115Vac(90-132Vac) and 230Vac(180-264Vac).
Input Connector: Molex Mini-Fit 42404-06.
Input Frequency: 47-63 Hz.
Inrush Current: Typical 25A at 230Vac (Active).
Input Current: Typical 4.0A at 115Vac, 2.0A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1.
EMI: Meet CISPR PUB.22 & FCC Class A.
Hold-up Time: Typ. 7-8.5mS at 115Vac/50mS at 230Vac.
Power Factor Correction & Harmonic Correction:
 Meet IEC 61000-3-2, PF typical 0.97-0.99 at full load.
Over Temperature Protection: With thermostat.
Earth Leakage Current: Less than 1.0mA.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Molex Mini-Fit 42404-24.
Output Wattage: Typical 350W under forced air flow.
Line Regulation: Typical 0.1%.
Load Regulation: Main O/P VO1 typical $\pm 1-2.0\%$.
 Aux. O/P VO2 typ. $\pm 2-3\%$. (Magnetic Amp).
 Aux. O/P VO3 typ. $\pm 3-5.0\%$. (P.R.).
Noise & Ripple: Typ. 1% peak to peak.
OVP: Built-in at O/P VO1 and VO2. (Latch type).
Adjustability: Available at VO1 & VO2 output.
Remote Sense: Available at O/P VO1 and VO2.
Redundancy: Available for N+1 redundant operation.
Current Sharing: Third-wire current sharing.
OR-ing diodes: Installed in all outputs.
Power OK: Installed.
Overload Protection (OLP): Fully protected against output overload and short circuit.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 71-77%. (various with the output voltage) Switching Frequency: Typ. 50K Hz. Circuit Topology: PWM Fixed Frequency Forward Circuit. Transient Response: Output voltage returns in typically 2mS following a 25% load change. Safety Standard: UL 60950-1/EN 60950-1 Class I. Power Density: 3.25Watts / Cubic Inch.	Operating Temperature: 0 to +50°C under 30 CFM forced air flow for full load. Storage Temperature: -20 to +85°C. Temperature Coefficient: 0.04%/ °C. Cooling: At least 30CFM forced cooling air flow for full load operation. Long Term Stability: After 20 minute warm-up, 0.1% for 8 hours. Construction: Enclosure box with handler.
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NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.
 (2) Due to requests in market and advances in technology, specifications subject to change without notification..



In application.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

SINGLE OUTPUT (W/fan cooling)

MODEL NO.	MAIN VO1 @ ★# ≡	
	Typ.	Volt.
HVP350-S033700	70.0A	3.3V
HVP350-S050650	65.0A	5.0V
HVP350-S120270	27.0A	12.0V
HVP350-S150220	22.0A	15.0V
HVP350-S240140	14.0A	24.0V
HVP350-S280120	12.0A	28.0V
HVP350-S360100	10.0A	36.0V
HVP350-S480075	7.5A	48.0V

DUAL OUTPUT (Under 30CFM forced air cooling)

MODEL NO.	MAIN VO1 @ ★#≡		AUX. VO2 @ ★ ▲#≡	
	Typ.	Volt.	Typ.	Volt.
HVP350-D120E	19.0A	+12.0V	24.0A	+5.0V
HVP350-D150E	15.5A	+15.0V	24.0A	+5.0V
HVP350-D240E	10.0A	+24.0V	24.0A	+5.0V
HVP350-D050D	35.0A	+5.0V	24.0A	+3.3V
HVP350-D120D	15.0A	+12.0V	24.0A	+3.3V
HVP350-D150D	12.0A	+15.0V	24.0A	+3.3V

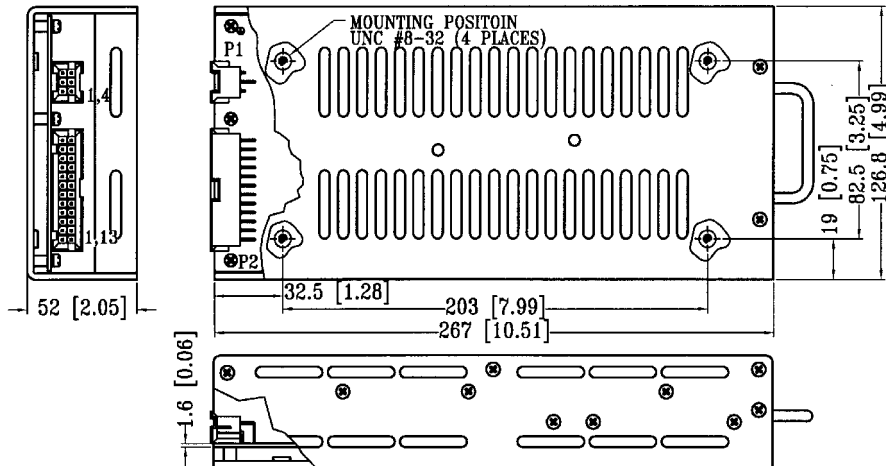
TRIPLE OUTPUT (Under 30CFM forced air cooling)

MODEL NO.	MAIN VO1 @ ★#≡		AUX. VO2 @ ★ ▲#≡		AUX. -VO3 •	
	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.
HVP350-T120EI	17.0A	+12.0V	23.0A	+5.0V	1.0A	-12.0V
HVP350-T120EE	17.0A	+12.0V	23.0A	+5.0V	1.0A	-5.0V
HVP350-T240EI	8.5A	+24.0V	23.0A	+5.0V	1.0A	-12.0V
HVP350-T150EK	13.5A	+15.0V	23.0A	+5.0V	1.0A	-15.0V
HVP350-T050DI	30.0A	+5.0V	30.0A	+3.3V	1.0A	-12.0V
HVP350-T033DK	35.0A	+3.3V	25.0A	+3.3V	1.0A	-15.0V
HVP350-T120DI	20.0A	+12.0V	25.0A	+3.3V	1.0A	-12.0V
HVP350-T150DK	16.0A	+15.0V	25.0A	+3.3V	1.0A	-15.0V

Symbol: "★" OVP built-in. "≡" 3rd-wire current sharing. "@" Adjustable. "▲" Installed with magnetic amplifier.

"•" Installed with Post Regulator (P.R.). " " OR-ing diodes. "#" Remote sensing.

MECHANICAL DIMENSIONS: MM [INCHES] WEIGHT:1,872.0g (66.0 Oz.) for Enclosure box.
1,675.0g (59.0 Oz.) for U-Bracket.



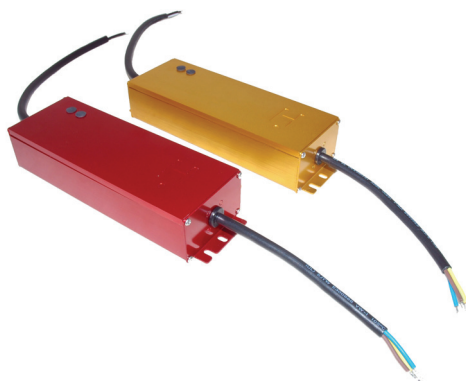
INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT CONNECTOR & PIN#	AC INPUT			SINGLE/ DUAL / TRIPLE OUTPUT				ASSORTED SIGNALS					
	AC-L	AC-N	AC-G	VO1	VO2	VO3	DC-COM	VO1#	VO2#	VO1≡	VO2≡	P.F.	P. Good
CONNECTOR & PIN#	P1-3	P1-5	P1-1	P2-1,2,3,4,5, 13,14,15,16,17	--	--	P2-6,7,8,9,10, 18,19,20,21,22	P2-11	--	P2-23	--	P2-12	P2-24
CONNECTOR & PIN#	P1-3	P1-5	P1-1	P2-1,2,3,13,14	P2-8,9,20,21	--	P2-4,5,6,7,15, 16,17,18,19	P2-11	P2-10	P2-23	P2-22	P2-12	P2-24
CONNECTOR & PIN#	P1-3	P1-5	P1-1	P2-1,2,3,13,14	P2-8,9,20,21	P2-15	P2-4,5,6,7,16, 17,18,19	P2-11	P2-10	P2-23	P2-22	P2-12	P2-24

Mating connector: Molex # 42385-06& 42385-24.



**UNIVERSAL INPUT HARMONIC CORRECTION (PFC)
AC-DC LED LIGHTING APPLICATION INTERNAL OPEN FRAME
SWITCHING POWER SUPPLIES 160 WATTS SINGLE OUTPUT
HILED160 SERIES**



FEATURES:

- ACCOMMODATE UNIVERSAL AC INPUT
- HIGH EFFICIENCY 90%
- SUITABLE FOR LED LIGHTING
- BUILT-IN ACTIVE PFC FUNCTION
- WATERPROOF COMPLIES WITH THE IP67 STANDARD
- COMPLIANCE TO SAFETY FOR LIGHTING

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: 90-264Vac with PFC.
Input Connector: Stripped and tinned end cable.
Input Frequency: 47-63Hz.
Inrush Current: 12.23Arms at 230Vac.
Input Current: Typical 1.565A at 115Vac, 0.8A at 230Vac.
Dielectric Withstand: Meet IEC 61347-2-13.
 I/P – OP:3750Vac, I/P – FG:1880Vac, O/P – FG:500Vac.
EMI: Meet EN55015, EN55022(CISPR 22) Class B
Hold-up Time: Typical 24.6mS at 115Vac,
 Typical 48.8mS at 230Vac.
Power Factor Correction: Meet Harmonic correction
 per IEC61000-3-2 Class C,
 PF 0.99 at 115Vac, 0.961 at 230Vac.
Over Temperature Protection (OTP): By NTC.
No Load Power: Less than 0.5Watt at 230Vac.
Leakage Current: Less than 0.4mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Connector: Stripped and tinned end cable.
Output Wattage: Typical 160 Watts.
Line Regulation: Typical $\pm 0.1\%$.
Load Regulation: Typical $\pm 1\%$.
Total Regulation: Typical 2%.
Noise & Ripple: Typ. 1.0% peak to peak.
OVP: Built-in (Latch).
Adjustability: Available at main output VO1.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.

GENERAL SPECIFICATION

Efficiency: Typical 90%. (various with output voltage)
Switching Frequency: 40-65KHz.
Circuit Topology: Quasi-Resonant circuit.
Transient Response: Output voltage returns in less than
 6mS following a 25% load change.
Safety Standard: Meet IEC 60950-1/CNS15233/UL 8750/
 EN 61347-1/EN61347-2-13 Class I.

Operating Temperature: -20°C to +50 °C.
Storage Temperature: -30 to +80°C.
Driving Method: Constant voltage mode (CV) or
 Constant current mode (CC).
Cooling: Free air convection.
Construction: Metal Box format.
Power Density: 4.66Watts / Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



In application.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

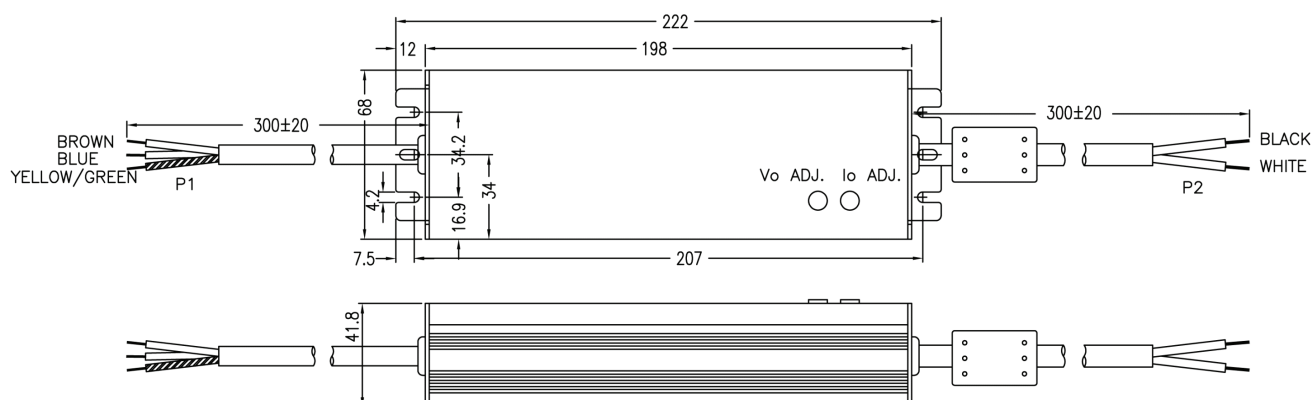
SINGLE OUTPUT

MODEL NO.	MAIN VO1 ★@※			
	Typ.	Dimming Range	Volt.	Volt. Adj. Range
HILED160-S200080	8.0A	4A ~ 8A	20V	17V ~20V
HILED160-S240066	6.6A	3.3A~6.6A	24V	20V ~24V
HILED160-S300053	5.3A	2.65A~5.3A	30V	25V ~30V
HILED160-S360044	4.4A	2.2A~4.4A	36V	31V ~36V

Symbol: "★" OVP built-in. "@" Adjustable. "※" Synchronous Rectifier.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT:1236 g (43.6Oz)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE OUTPUT	
	AC-L	AC-N	AC-G	VO1	DC-COM
CTR & PIN #	P1-BROWN	P1-BLUE	P1-GREEN	P2-WHITE	P2-BLACK

Remark: Output voltage and constant current can be adjusted through internal potential meter by removing the rubber on case.



UNIVERSAL AC INPUT HARMONIC CORRECTION AC-DC HOT-SWAP CompactPCI QUAD OUTPUT 175 WATTS CURRENT SHARING SWITCHING POWER SUPPLIES HAC175P & HAC175D SERIES



FEATURES:

- 175W IN 3U X 8HP EUROCARD PACKAGE
- UNIVERSAL AC INPUT WITH PFC
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- DROOP CURRENT SHARING
- EMI MEET EN 55022 / FCC CLASS A
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 90-264Vac with PFC.
Power Factor Correction: Meet Harmonic Correction IEC 61000-3-2. Power Factor typ. 0.98.
Input Connector: PCIH47M400A1 for HAC175P.
 DIN41612 M24/8 for HAC175D.
Input Frequency: 47-63Hz.
Inrush Current: < 30A at 230Vac by adding thermistor.
Input Current:
 2.2A at 115Vac/1.1A at 230Vac for HAC175D.
 2.4A at 115Vac/1.2A at 230Vac for HAC175P.
Dielectric Withstand: Meet IEC 60950-1 regulation.
EMI: Meet EN 55022 / FCC Class A.
Hold-up Time: 5mS at 115V & 230Vac after power fail signal.
Remote ON/OFF: Available at [INH#] & [EN#] pins.
Power Fail Signal: Available at [FAL#] pin.
Status LED: <Green> means valid input voltage.
 <Amber> means a critical fault.
Thermal Protection: Installed NTC for thermal sensor at [DEG#] pin.
Earth Leakage Current: Less than 0.5mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typ. 175W continuous.
Output Connector: PCIH47M400A1 for HAC175P.
 DIN41612 M24/8 for HAC175D.
Line Regulation: Typ. 0.5%.
Load Regulation: VO1 & VO2 typ. $\pm 1.0\%$.
 VO3 & VO4 typ. $\pm 2.0\%$.
Noise & Ripple: Typ. 1% peak-peak or 50mV, whichever is greater.
OVP: Built-in at VO1 & VO2.
Adjustability: Available at VO1 & VO2. VO3 factory set.
Remote Sensing: Available at VO1 & VO2.
Hot-Swap: Available.
N+1 Redundancy: Installed with OR-ing diodes for N+1 redundancy operation.
Current Sharing: Droop current sharing at all output.
Power OK Signal: Available for VO1 & VO2.
Over Current Protection (OCP): Installed in all outputs.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 Consult factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 75%.
Switching Frequency: 100 KHz.
Circuit Topology: Half-bridge circuit.
Transient Response: Typ. 1.0mS for a 25% load change.
Safety Standard: IEC 60950-1/UL 60950-1 Class I.
Construction: Eurocard 3U x 8HP x 160mm
 CompactPCI format. Front Panel with either
 Ordinary handle or Extractor handle.

Operating Temperature: 0 to +50°C at full load with specified air flow.
 Derates linearly to 50% at +70°C.
Storage Temperature: -40°C to +85°C.
Temperature Coefficient: Typ. $\pm 0.02\%$ /°C.
Cooling: At least 20CFM(600LFM) airflow is required to deliver full rating load.
Power Density: 3.2 Watts /Cubic Inch.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2) Due to requests in market and advances in technology, specifications subject to change without notification..



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @★#				AUX. +VO2 ▲★# = @			AUX. +VO3▲= (@)				AUX. -VO4 ● =			
	Min.	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Peak	Typ.	Volt.	Max.	Peak
HAC175P-490(E)	2A	20A	+5V	35A	10A	+3.3V	20A	3.0A	+12V #	5.0A	6A	0.5A	-12V	1.0A	1.0A
HAC175P-490(O)	2A	20A	+5V	35A	10A	+3.3V	20A	3.0A	+12V #	5.0A	6A	0.5A	-12V	1.0A	1.0A
HAC175D-490(O)	2A	20A	+5V	35A	10A	+3.3V	20A	3.0A	+12V	5.0A	6A	0.5A	-12V	1.0A	1.0A

Symbol: "★" OVP built-in. "@" Adjustable. "(@)" Adjustable factory set.. "#" Remote sensing. "-" Droop Load Sharing. " " Installed with Or-ing diode.

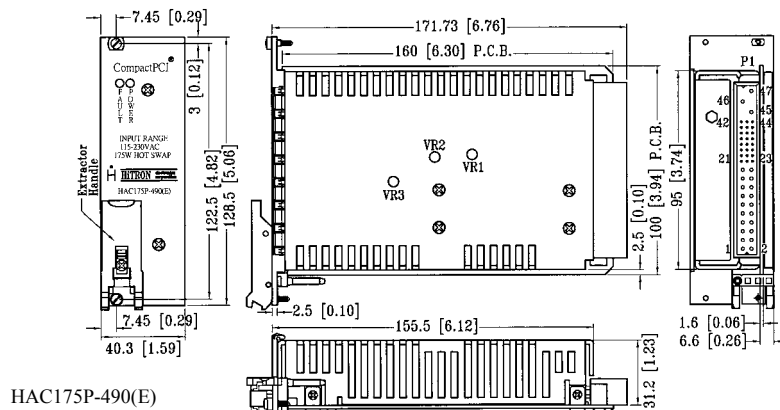
"▲" Magnetic Amplifier. "●" Installed with Post Regulator.

Remark: Peak load less than 60sec. with duty cycle <10%.

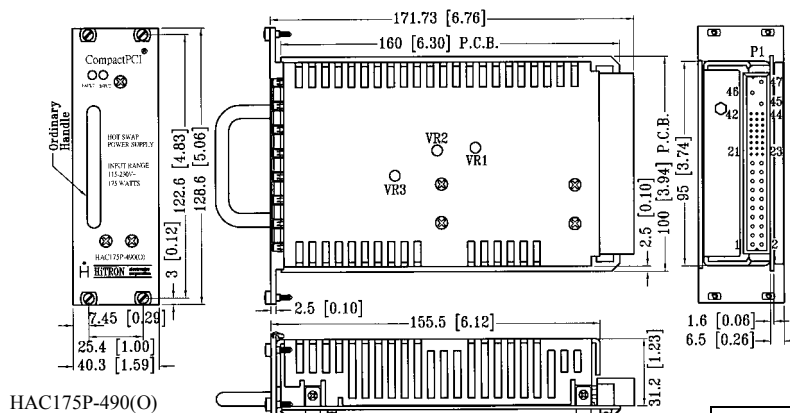
Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

MECHANICAL DIMENSIONS: MM [INCHES]

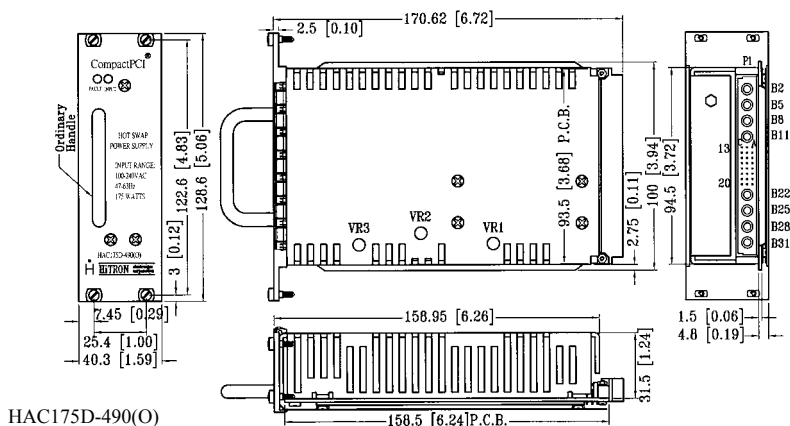
WEIGHT: 666.0g (23.5 Oz.)



HAC175P-490(E)



HAC175P-490(O)



HAC175D-490(O)

HAC175P

HAC175D

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	PIN NO.
AC-L	47
AC-N	46
AC-GND	45
VO1	1,2,3,4
VO1 S +	30
VO1 S -	34
VO2	13, 14, 15, 16, 17, 18.
VO2 S+	33
VO3	20
VO3 S+	36
VO4	21
DC COM	5, 6, 7, 8, 9, 10, 11, 12, 19, 24.
EN#	27
DEG #	38
INH #	39
FAL #	42

Mating connector: PCIH47F400A1

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	PIN NO.
AC-L	B2
AC-N	B5
AC-GND	B11
VO1	B22
VO1 S +	A17
VO1 S -	A16
VO2	B13,14,15,16, 17,18.
VO2 S+	A18
VO3	B19
VO4	B20
DC COM	B25
EN#	C13
DEG #	C14
INH #	A14
FAL #	C15

Mating connector: DIN 41612 M24/8-F



UNIVERSAL AC INPUT HARMONIC CORRECTION AC-DC HALF SIZE HOT-SWAP CompactPCI QUAD OUTPUT 200 WATTS ACTIVE CURRENT SHARING SWITCHING POWER SUPPLIES HAC202P SERIES



FEATURES:

- 200W 3U X 4HP HALF SIZE EUROCARD PACKAGE
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 / FCC CLASS A
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 90-264Vac.
Power Factor Correction: Meet Harmonic Correction IEC 61000-3-2. Power Factor typ. 0.98-0.99.
Input Connector: Positronic 47-pin PCIH47M400A1.
Input Frequency: 47-63Hz.
Inrush Current: 6.85Arms at 230Vac 50Hz.
Input Current: 2.45A at 115Vac/1.13A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1 regulation.
EMI: Meet EN 55022 / FCC Class A.
Hold-up Time: 16.8mS at 115Vac/230Vac.
Leakage Current: 0.45mA for IEC60950-1 Touch current.
Remote ON/OFF: Available at [INH#] & [EN#] pins.
Power Fail Signal: Available at [FAL#] pin.
Status LED: <Green> means valid input voltage.
<Amber> means a critical fault.
Thermal Protection (OTP): Installed NTC and thermostat for thermal sensor at [DEG#] pin.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typ. 200W continuous.
Output Connector: Positronic 47-pin PCIH47M400A1.
Line Regulation: Typ. 0.1%.
Load Regulation: Typ. $\pm 1\%$.
Total Regulation: Typ. $\pm 1.5\%$.
Noise & Ripple: Typ. 1% peak to peak.
OVP: Built-in at all outputs.
Adjustability: Available at VO1,2&3.
Remote Sensing: Available at VO1, VO2 & VO3.
Hot-Swap: Available.
N+1 Redundancy: Installed with internal OR-ing diodes at all outputs for N+1 redundancy operation.
Current Sharing: Third-wire current sharing at VO1,2 & 3.
Power OK Signal: Available for all output.
Over Current Protection (OCP): Installed at each rail.
Overload Protection (OLP): Fully protected against output overload or short circuit. Typical 115-135% max. load. Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 77 %.
Switching Frequency: 125K Hz.
Circuit Topology: Forward circuit.
Transient Response: Peak transient less than 105mV and recovers within 0.084mS after 25% load-change.
Safety Standard: IEC 60950-1 Class I.
Construction: Eurocard 3U X 4HP X 160mm CompactPCI.

Operating Temperature: 0 to +50 °C at full load with specified air flow. Derates linearly to 50% at +70 °C.
Storage Temperature: -40 to +85 °C.
Temperature Coefficient: Typ. $\pm 0.02\%$ / °C.
Cooling: At least 30CFM(800 LFM) moving air is required to achieve full rating power 200W in a confined area.
Power Density: 7.4 Watts/ Cubic Inch.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



In application.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡				AUX. +VO2 ▲@ #≡				AUX. +VO3 ▲≡# @					AUX. -VO4 ▲				
	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.
HAC202P-490	2A	25A	+5V	27A	0A	10A	+3.3V	20A	0A	3A	+12V	5A	6A	0A	0.5A	-12V	1A	1A

Symbol: " " OVP built-in. "@ " Adjustable. "# " Remote sensing. "≡" 3rd-wire Load Sharing.

" " Installed with Or-ing diode. "▲" Magnetic Amplifier. " " Synchronous Rectifier.

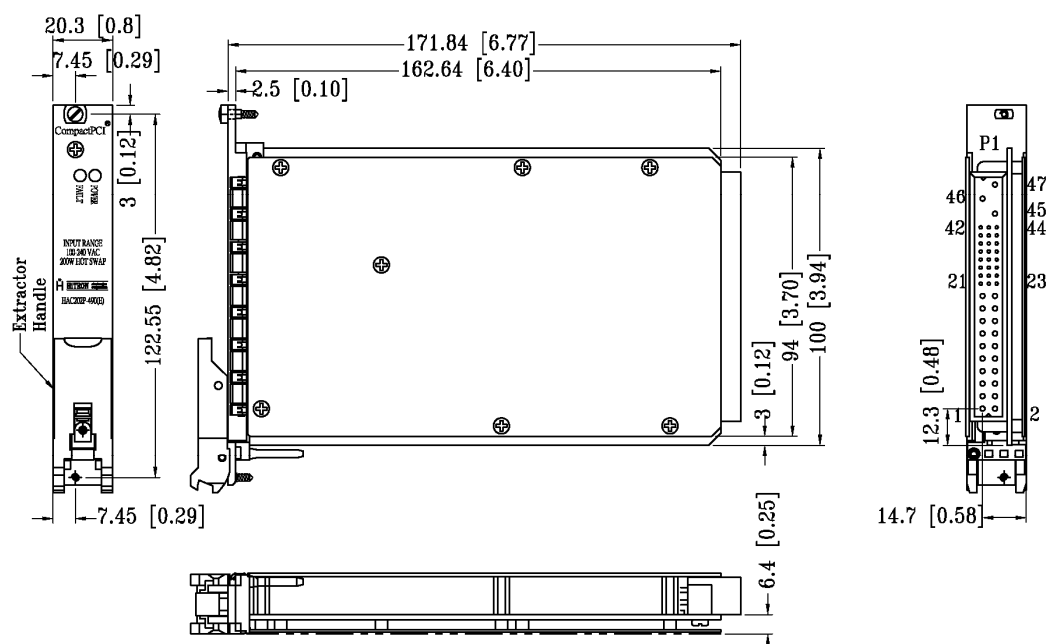
Remark: Peak load less than 60sec. with duty cycle <10%.

Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

Total max. power of V1 and V2 should be less than 175Watt.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 700.0 g (24.7 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	AC INPUT			QUAD OUTPUT														STATUS/CONTROL				
ASSIGNMENT	L	N	G	VO1	5V S+	5V S-	5V Adj.	C.S.	VO2	3.3V S+	3.3V S-	3.3V Adj.	C.S.	VO3	+12V S+	C.S.	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	47	46	45	1,2,3,4	30	34	29	35	13,14,15,16,17,18	33	34	32	41	20	36	44	21	5,6,7,8,9,10,11,12,19,24	27	38	39	42

Mating connector: PCIH47F400A1.



UNIVERSAL AC INPUT HARMONIC CORRECTION AC-DC HOT-SWAP CompactPCI QUAD OUTPUT 250 WATTS ACTIVE CURRENT SHARING SWITCHING POWER SUPPLIES HAC250P SERIES



FEATURES:

- 250W 3U X 8HP EUROCARD PACKAGE
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 / FCC CLASS A
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 90-264Vac.
Power Factor Correction: Meet Harmonic Correction IEC 61000-3-2. Power Factor typ. 0.95-0.97.
Input Connector: Positronic 47-pin PCIH47M400A1.
Input Frequency: 47-63Hz.
Inrush Current: Less than 30A at 230Vac.
Input Current: 2.8A at 115Vac/1.4A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1 regulation.
EMI: Meet EN 55022 / FCC Class A.
Hold-up Time: 5mS after power fail signal.
Earth Leakage: Less than 0.5mA at 230Vac.
Remote ON/OFF: Available at [INH#] & [EN#] pins.
Power Fail Signal: Available at [FAL#] pin.
Status LED: <Green> means valid input voltage.
 <Amber> means a critical fault.
Thermal Protection (OTP): Installed NTC and thermostat for thermal sensor at [DEG#] pin.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typ. 250W continuous.
Output Connector: Positronic 47-pin PCIH47M400A1.
Line Regulation: Typ. 0.1%.
Load Regulation: Typ. $\pm 1 \pm 4\%$. (Various with output voltage.)
Noise & Ripple: Typ. 1% peak to peak or 50mV, whichever is greater.
OVP: Built-in at all outputs.
Adjustability: Available at VO1,2 & 3.
Output Trim: Electrical trim available at VO1/VO2.[ADJ #]
Remote Sensing: Available at VO1, VO2 & VO3.
Hot-Swap: Available.
N+1 Redundancy: Installed with internal OR-ing diodes at all outputs for N+1 redundancy operation.
Current Sharing: Third-wire current sharing at VO1,2 & 3.
Power OK Signal: Available for all output.
Over Current Protection (OCP): Installed at each rail.
Overload Protection (OLP): Fully protected against output overload or short circuit. Typical 120% max. load. Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 78%.
Switching Frequency: 120K Hz.
Circuit Topology: Forward circuit.
Transient Response: Peak transient less than 100mV and recovers within 2mS after 25% load-change.
Safety Standard: IEC 60950-1 Class I.
Construction: Eurocard 3U X 8HP X 160mm CompactPCI format. Front Panel with either Ordinary handle or Extractor handle.
Operating Temperature: 0 to +50 °C at full load with specified air flow. Derates linearly to 50% at +70 °C.
Storage Temperature: -40 to +85 °C.
Temperature Coefficient: Typ. $\pm 0.02\% / ^\circ\text{C}$.
Cooling: At least 20 CFM(600 LFM) moving air is required to achieve full rating power 250W in a confined area.
Power Density: 4.58 Watts/ Cubic Inch.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.
 (2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡				AUX. +VO2 ▲@ #≡				AUX. +VO3 ▲≡# @					AUX. -VO4 ● ■=				
	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.
HAC250P-490(E)	2A	25A	+5V	33A	0A	18A	+3.3V	33A	0A	5A	+12V	5.5A	6A	0A	0.5A	-12V	1A	1.5A
HAC250P-490(O)	2A	25A	+5V	33A	0A	18A	+3.3V	33A	0A	5A	+12V	5.5A	6A	0A	0.5A	-12V	1A	1.5A

Symbol: " " OVP built-in. "@ " Adjustable. "#" Remote sensing. "≡" 3rd-wire Load Sharing. "=" Droop Current Sharing.

" " Installed with Or-ing diode. "▲" Magnetic Amplifier. "●" Installed with Post-regulator. "■" Common Choke.

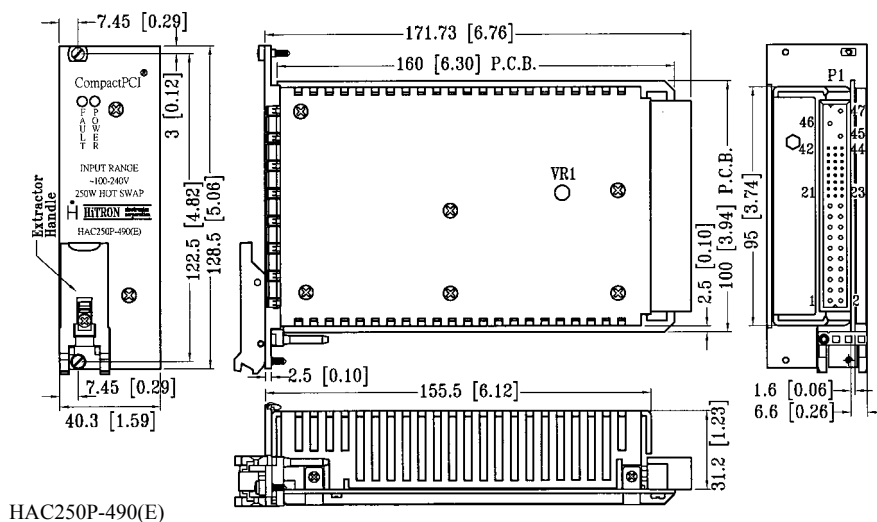
Remark: 1. Peak load less than 60sec. with duty cycle <10%.

2. Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

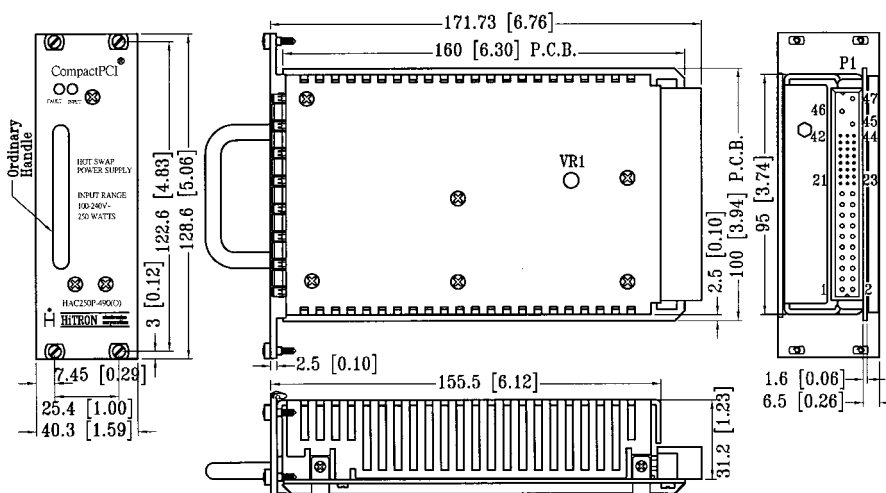
3. Please consult the factory if you have the special min load request of VO1.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 666.0 g (23.5 Oz.)



HAC250P-490(E)



HAC250P-490(O)

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	AC INPUT			QUAD OUTPUT														STATUS/CONTROL			
ASSIGNMENT	L	N	G	VO1	S+	S-	Adj.	C.S.	VO2	S+	Adj.	C.S.	VO3	S+	C.S.	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	47	46	45	1,2,3,4	30	34	29	35	13,14,15,16,17,18	33	32	41	20	36	44	21	5,6,7,8,9,10,11,12,19,24	27	38	39	42

Mating connector: PCIH47F400A1.



UNIVERSAL AC INPUT HARMONIC CORRECTION AC-DC HOT-SWAP CompactPCI QUAD OUTPUT 301 WATTS ACTIVE CURRENT SHARING SWITCHING POWER SUPPLIES HAC301P SERIES



FEATURES:

- 300W 3U X 8HP EUROCARD PACKAGE
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 / FCC CLASS B
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 90-264Vac.
Power Factor Correction: Meet Harmonic Correction IEC 61000-3-2. Power Factor typ. 0.98-0.99.
Input Connector: Positronic 47-pin PCIH47M400A1.
Input Frequency: 47-63Hz.
Inrush Current: 6.96Arms at 230Vac.
Input Current: 3.34A at 115Vac/1.63A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1 regulation.
EMI: Meet EN 55022 / FCC Class B.
Hold-up Time: 18.4mS at 115Vac/230Vac.
Earth Leakage Current: Less than 0.5mA at 230Vac.
Remote ON/OFF: Available at [INH#] & [EN#] pins.
Power Fail Signal: Available at [FAL#] pin.
Status LED: <Green> means valid input voltage.
 <Amber> means a critical fault.
Thermal Protection (OTP): Installed NTC and thermostat for thermal sensor at [DEG#] pin.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typ. 300W continuous.
Output Connector: Positronic 47-pin PCIH47M400A1.
Line Regulation: Typ. 0.5%.
Load Regulation: Typ. $\pm 1-5\%$.
Noise & Ripple: Typ. 1% peak to peak or 50mV, whichever is greater.
OVP: Built-in at all outputs.
Adjustability: Available at VO1,2&3.
Volt. Tolerance: VO1/2 typ. 1%, VO3 typ. 3%, VO4 typ. 5%.
Remote Sensing: Available at VO1, VO2 & VO3.
Hot-Swap: Available.
N+1 Redundancy: Installed with internal OR-ing diodes at all outputs for N+1 redundancy operation.
Current Sharing: Third-wire current sharing at VO1,2 & 3.
Power OK Signal: Available for all output.
Over Current Protection (OCP): Installed at each rail.
Overload Protection (OLP): Fully protected against output overload or short circuit. Typical 105-130% max. load. Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 78%.
Switching Frequency: 120K Hz.
Circuit Topology: Forward circuit.
Transient Response: Peak transient less than 200mV and recovers within 0.5mS after 25% load-change.
Safety Standard: IEC 60950-1 Class I.
Construction: Eurocard 3U X 8HP X 160mm CompactPCI format.

Operating Temperature: 0 to +50 °C at full load with specified air flow. Derates linearly to 50% at +70 °C.
Storage Temperature: -40 to +85 °C.
Temperature Coefficient: Typ. $\pm 0.02\%$ / °C.
Cooling: At least 60CFM(800 LFM) moving air is required to achieve full rating power 300W in a confined area.
Power Density: 7.7 Watts/ Cubic Inch.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡					AUX. +VO2 ▲@ #≡					AUX. +VO3 ▲≡# @					AUX. -VO4 ▲				
	Min.	Typ.	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.
HAC301P-490(E)	0A	25A	+5V	40A	45A	0A	25A	+3.3V	40A	45A	0A	7A	+12V	10A	12A	0A	1A	-12V	2A	2A

Symbol: " " OVP built-in. "@" Adjustable. "#" Remote sensing. "≡" 3rd-wire Load Sharing. "=" Droop Current Sharing.

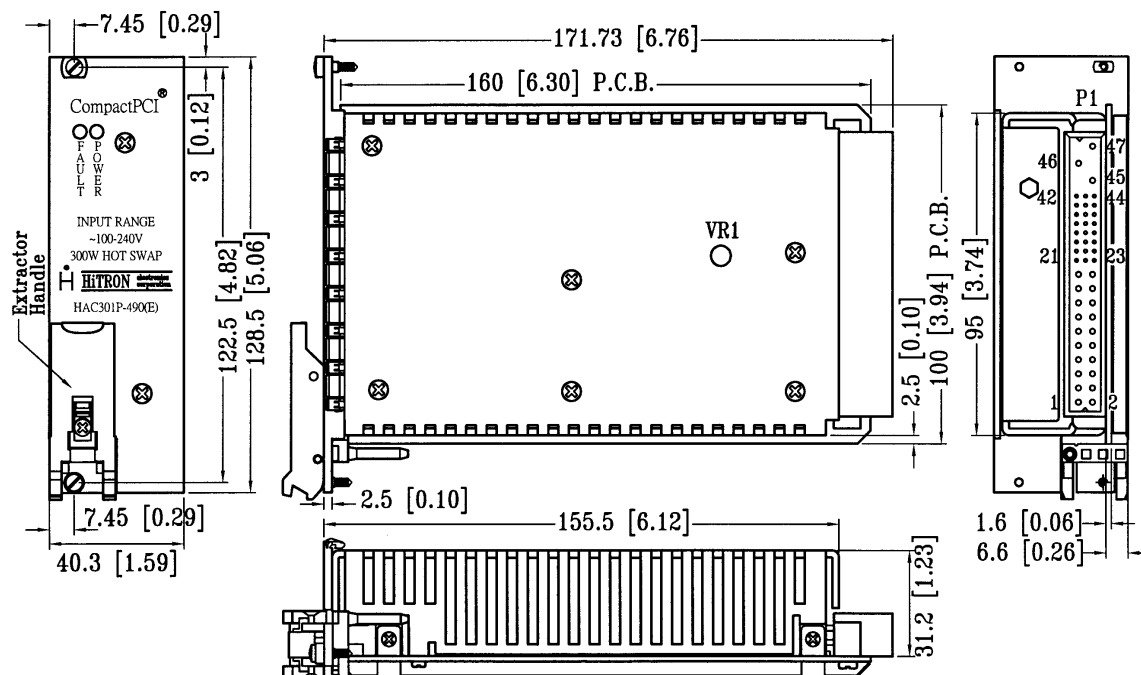
" " Installed with Or-ing diode. "▲" Magnetic Amplifier. " " Synchronous Rectifier.

Remark: Peak load less than 60sec. with duty cycle <10%.

Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 666.0 g (23.5 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	AC INPUT			QUAD OUTPUT														STATUS/CONTROL			
ASSIGNMENT	L	N	G	VO1	S+	S-	Adj.	C.S.	VO2	S+	Adj.	C.S.	VO3	S+	C.S.	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	47	46	45	1,2,3,4	30	34	29	35	13,14,15,16,17,18	33	32	41	20	36	44	21	5,6,7,8,9,10,11,12,19,22,24	27	38	39	42

Mating connector: PCIH47F400A1.



- **400W 6U X 8HP EUROCARD PACKAGE**
- **MEET IEC 61000-3-2 HARMONIC CORRECTION**
- **INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY**
- **HOT-SWAPPABLE**
- **THIRD-WIRE CURRENT SHARING**
- **EMI MEET EN 55022 CLASS A**
- **CE MARKING COMPLIANCE**
- **FULLY COMPLIANT WITH PICMG**

INPUT SPECIFICATION

Input Voltage: Typ. 90-264Vac.

Power Factor Correction: Meet Harmonic Correction
IEC 61000-3-2. Power Factor typ. 0.99.

Input Connector: Positronic 47-pin PCIH47M400A1.

Input Frequency: 47-63Hz.

Inrush Current: Typ. 30Arms at 230Vac.(Active).

Input Current: 5.1A at 115Vac/2.6A at 230Vac.

Dielectric Withstand: Meet IEC 60950-1 regulation.

Transient Protection: MOV withstands transient as
specified by EN 61000-4-4 level 3.

EMI: Meet EN 55022 Class A.

Hold-up Time: 30mS at 115Vac, 34mS at 230Vac.

Remote ON/OFF: Available at [INH#] & [EN#] pins.

Power Fail Signal: Available at [FAL#] pin.

Status LED: <Green> means valid input voltage.
<Amber> means a critical fault.

Thermal Protection (OTP): Installed NTC and thermostat
for thermal sensor at [DEG#] pin.

Leakage Current: Typ. 0.7mA at 230Vac.

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Output Power: Typ. 400-450W continuous.

Output Connector: Positronic 47-pin PCIH47M400A1.

Line Regulation: Typ. 0.1%.

Load Regulation: VO1 typ. $\pm 1.0\%$, VO2 typ. $\pm 1.5\%$.
VO3 typ. $\pm 3.0\%$, VO4 typ. $\pm 3.0\%$.

Noise & Ripple: 1% peak-peak or 50mV, whichever is greater.

OVP: Built-in at all outputs.

Adjustability: Available at VO1, 2 & 3.

Output Trim: Electrical trim available at VO1/2. [ADJ #].

Remote Sensing: Available at VO1, VO2 & VO3.

Hot-Swap: Available.

N+1 Redundancy: Installed with internal OR-ing diodes at all outputs and third-wire current sharing method for N+1 redundancy operation.

Current Sharing: Third-wire current sharing at VO1, 2 & 3.

DC OK Signal: Available for all outputs.

Power OK Signal: Available for all outputs.

Over Current Protection (OCP): Installed at each rail.

Overload Protection (OLP): Fully protected against output overload or short circuit. Typ. 120-130% max. load. Consult the factory for special OLP setting.

Efficiency: Typical 78%.
Switching Frequency: 120K Hz.
Circuit Topology: Forward circuit.
Transient Response: Peak transient less than 250mV and returns to within 1% less than 1.0mS for 25% load-change.
Safety Standard: IEC 60950-1 Class I.
Construction: Eurocard 6U X 8HP X 160mm CompactPCI format. Front Panel with Extractor handle.

Operating Temperature: 0 to +50 °C at full load with specified air flow. Derates linearly to 50% at +70 °C.

Storage Temperature: -40 to +85 °C.

Temperature Coefficient: Typ. $\pm 0.04\% / ^\circ\text{C}$.

Cooling: At least 600LFM/20CFM moving air is required to achieve full rating power 400W in a confined area.

Power Density: 3.98 Watts/ Cubic Inch.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.
(2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡				AUX. +VO2 ▲@ #≡				AUX. +VO3 ▲≡# @					AUX. -VO4 ▲				
	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.
HAC400P-490	4.0A	40A	+5V	55.0A	0A	20A	+3.3V	55A	0A	10A	+12V	14A	15A	0A	3A	-12V	4A	5A

Symbol: " " OVP built-in. "@@ Adjustable. "# Remote sensing. "≡" 3rd-wire Load Sharing.

" " Installed with Or-ing diode. "▲" Magnetic Amplifier. "●" Installed with Post-regulator. .

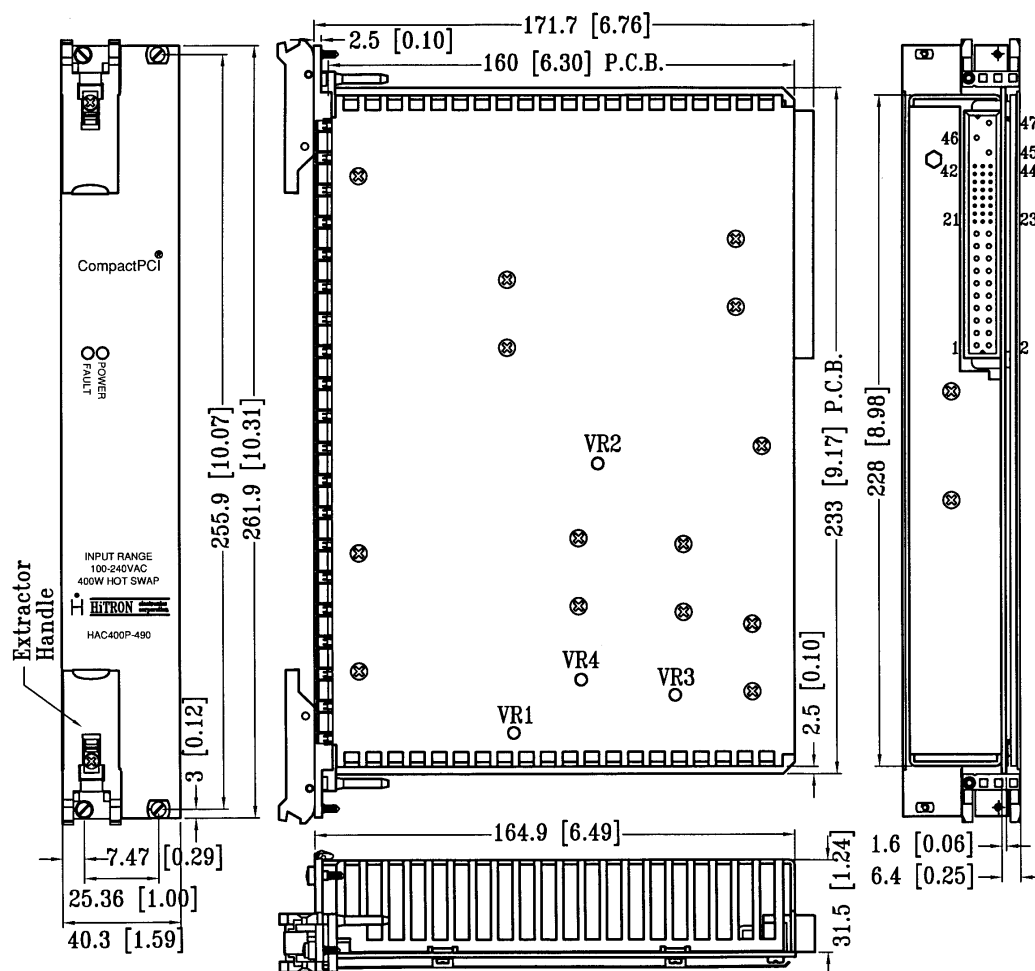
Remark: Peak load less than 60sec. with duty cycle <10%.

Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

Total max. power of VO1 and VO2 should be less than 300W.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 1.7kg (3.75 lb.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	AC INPUT			QUAD OUTPUT													STATUS/CONTROL				
ASSIGNMENT	L	N	G	VO1	S+	S-	Adj.	C.S.	VO2	S+	Adj.	C.S.	VO3	S+	C.S.	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	47	46	45	1,2,3,4	30	34	29	35	13,14,15,16,17,18	33	32	41	20	36	44	21	5,6,7,8,9,10,11,12,19,24	27	38	39	42

Mating connector: PCIH47F400A1.



UNIVERSAL AC INPUT HARMONIC CORRECTION AC-DC HOT-SWAP CompactPCI QUAD OUTPUT 500 WATTS ACTIVE CURRENT SHARING SWITCHING POWER SUPPLIES HAC500P SERIES



FEATURES:

- 500W 6U X 8HP EUROCARD PACKAGE
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 / CLASS A
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 90-264Vac.
Power Factor Correction: Meet Harmonic Correction IEC 61000-3-2. Power Factor typ. 0.99.
Input Connector: Positronic 47-pin PCIH47M400A1.
Input Frequency: 47-63Hz.
Inrush Current: $\leq 30.6\text{A(rms)}$ at 230Vac.
Input Current: 5.1A at 115Vac/2.6A at 230Vac.
Dielectric Withstand: Meet IEC 60950-1 regulation.
Transient Protection: MOV withstands transient as specified by EN 61000-4-4 level 3.
EMI: Meet EN 55022 Class A.
Hold-up Time: 22.4ms at 115Vac, 34ms at 230Vac.
Remote ON/OFF: Available at [INH#] & [EN#] pins.
Power Fail Signal: Available at [FAL#] pin.
Status LED: <Green> means valid input voltage.
<Amber> means a critical fault.
Thermal Protection (OTP): Installed NTC and thermostat for thermal sensor at [DEG#] pin.
Leakage Current: Typ. 0.7mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Power: Typ. 500W continuous.
Output Connector: Positronic 47-pin PCIH47M400A1.
Line Regulation: Typ. 0.1%.
Load Regulation: VO1 & VO2 typ. $\pm 0.5\%$.
VO3 typ. $\pm 1.0\%$, VO4 typ. $\pm 3.0\%$.
Noise & Ripple: Typ. 1% peak-peak or 50mV, whichever is greater.
OVP: Built-in at all outputs.
Adjustability: Available at VO1,2,3 & 4.
Output Trim: Electrical trim available at VO1/2. [ADJ #].
Remote Sensing: Available at VO1, VO2 & VO3.
Hot-Swap: Available.
N+1 Redundancy: Installed with internal OR-ing diodes at all outputs and third-wire current sharing method for N+1 redundancy operation.
Current Sharing: Third-wire current sharing at VO1,2 & 3.
DC OK Signal: Available for all outputs.
Power OK Signal: Available for all outputs.
Over Current Protection (OCP): Installed at each rail.
Overload Protection (OLP): Fully protected against output overload or short circuit. Typ. 120-130% max. load. Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 77%.
Switching Frequency: 120K Hz.
Circuit Topology: Forward circuit.
Transient Response: Peak transient less than 250mV and returns to within 1% less than 0.5ms for 50% load-change.
Safety Standard: IEC 60950-1 Class I.
Construction: Eurocard 6U X 8HP X 160mm CompactPCI format. Front Panel with Extractor handle.

Operating Temperature: -30 to +50 °C at full load with specified air flow. Derates linearly to 50% at +70 °C.
Storage Temperature: -30 to +85 °C.
Temperature Coefficient: Typ. $\pm 0.04\% / ^\circ\text{C}$.
Cooling: At least 800LFM moving air is required to achieve full rating power 500W in a confined area.
Power Density: 5.0 Watts/ Cubic Inch.

NOTE: (1) All measurements are at nominal input, full load and +25°C unless otherwise specifications.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡				AUX. +VO2 ▲@ #≡				AUX. +VO3 ▲≡# @					AUX. -VO4 @▲				
	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.
HAC500P-490	4A	50A	+5V	60A	0A	30A	+3.3V	60A	0A	10A	+12V	14A	15A	0A	3A	-12V	4A	5A

Symbol: " " OVP built-in. "@ " Adjustable. "#" Remote sensing. "≡" 3rd-wire Load Sharing.

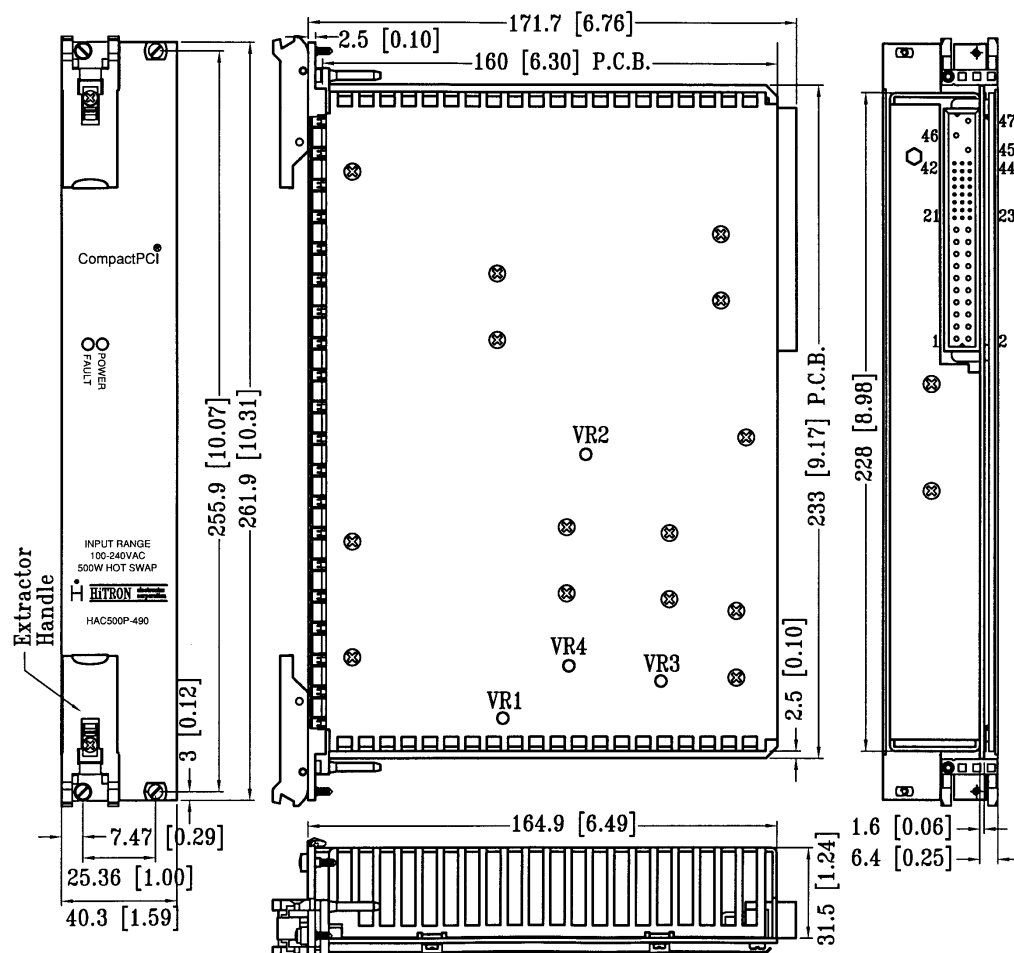
" " Installed with Or-ing diode. "▲" Magnetic Amplifier. "●" Installed with Post-regulator. .

Remark: Peak load less than 60sec. with duty cycle <10%.

Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 1.7kg (3.75 lb.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			QUAD OUTPUT														STATUS/CONTROL			
	L	N	G	VO1	S+	S-	Adj.	C.S.	VO2	S+	Adj.	C.S.	VO3	S+	C.S.	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	47	46	45	1,2,3,4	30	34	29	35	13,14,15,16,17,18	33	32	41	20	36	44	21	5,6,7,8,9,10,11,12,19,24	27	38	39	42

Mating connector: PCIH47F400A1.



36-72VDC INPUT RANGE DC-DC CONVERTER HOT-SWAP CompactPCI QUAD OUTPUT 200 WATTS ACTIVE CURRENT SHARING SWITCHING POWER SUPPLIES HDC201P-48B SERIES



FEATURES:

- 200W 3U X 8HP EUROCARD PACKAGE
- 36-72VDC NOMINAL 48VDC INPUT
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 / FCC CLASS B
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 36-72Vdc, nominal input 48Vdc.
Input Connector: Positronic 47-pin PCIH47M400A1.
Inrush Current: Typ. 20A at nominal input 48Vdc.
Input Current: 5.2A at nominal input 48Vdc.
Dielectric Withstand: Meet IEC 60950-1 regulation.
EMI: Meet CISPR EN 55022 & FCC Class B.
Remote ON/OFF: Available at [INH#] & [EN#] pins.
Power Fail Signal: Available at [FAL#] pin.
Status LED: <Green> means valid input voltage.
<Amber> means a critical fault.
Thermal Protection (OTP): Installed NTC for thermal sensor at [DEG#] pin.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typ. 200W continuous.
Output Connector: Positronic 47-pin PCIH47M400A1.
Line Regulation: Typ. 0.1%.
Load Regulation: Typ. ± 1.0 -2.0%.
Noise & Ripple: Typ. 1% peak to peak or 50mV, whichever is greater.
OVP: Built-in at all outputs.
Adjustability: Available at VO1, 2&3.
Output Trim: Electrical trim available at VO1/2.[ADJ #]
Hot-Swap: Available.
Remote Sensing: Available at VO1, VO2 & VO3.
Power OK Signal: Available for all outputs.
N+1 Redundancy: Installed with internal OR-ing diodes at all outputs for N+1 redundancy.
Current Sharing: Third-wire current sharing at VO1, 2&3.
Over Current Protection (OCP): Installed in each rail.
Overload Protection (OLP): Fully protected against output overload or short circuit. Typical 120% max. load. Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 79 %.
Switching Frequency: 110K Hz.
Circuit Topology: Forward circuit.
Transient Response: Typ. 3mS following 25% load-change.
Safety Standard: IEC 60950-1 Class I.
Construction: Eurocard 3U X 8HP X 160mm
CompactPCI format. Front Panel with
either Ordinary handle or Extractor handle.
Operating Temperature: 0 to +50 °C at full load with
specified air flow. Derates linearly to 50% at +70°C.
Storage Temperature: -40 to +85 °C.
Temperature Coefficient: Typ. $\pm 0.02\%$ / °C.
Cooling: At least 20CFM(600LFM) moving air is required
to achieve full rating power 200W in a confined area.
Power Density: 3.7 Watts/ Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



In application

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡				AUX. +VO2 ▲@ #≡			AUX. +VO3 ▲≡# @				AUX. -VO4 ● ■=			
	Min.	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Typ.	Volt.	Max.	Pk.	Typ.	Volt.	Max.	Pk.
HDC201P-48B-490(E)	2.0A	25A	+5V	33A	10A	+3.3V	33A	3.0A	+12V	5.0A	6.0A	0.5A	-12V	1.0A	1.0A
HDC201P-48B-490(O)	2.0A	25A	+5V	33A	10A	+3.3V	33A	3.0A	+12V	5.0A	6.0A	0.5A	-12V	1.0A	1.0A

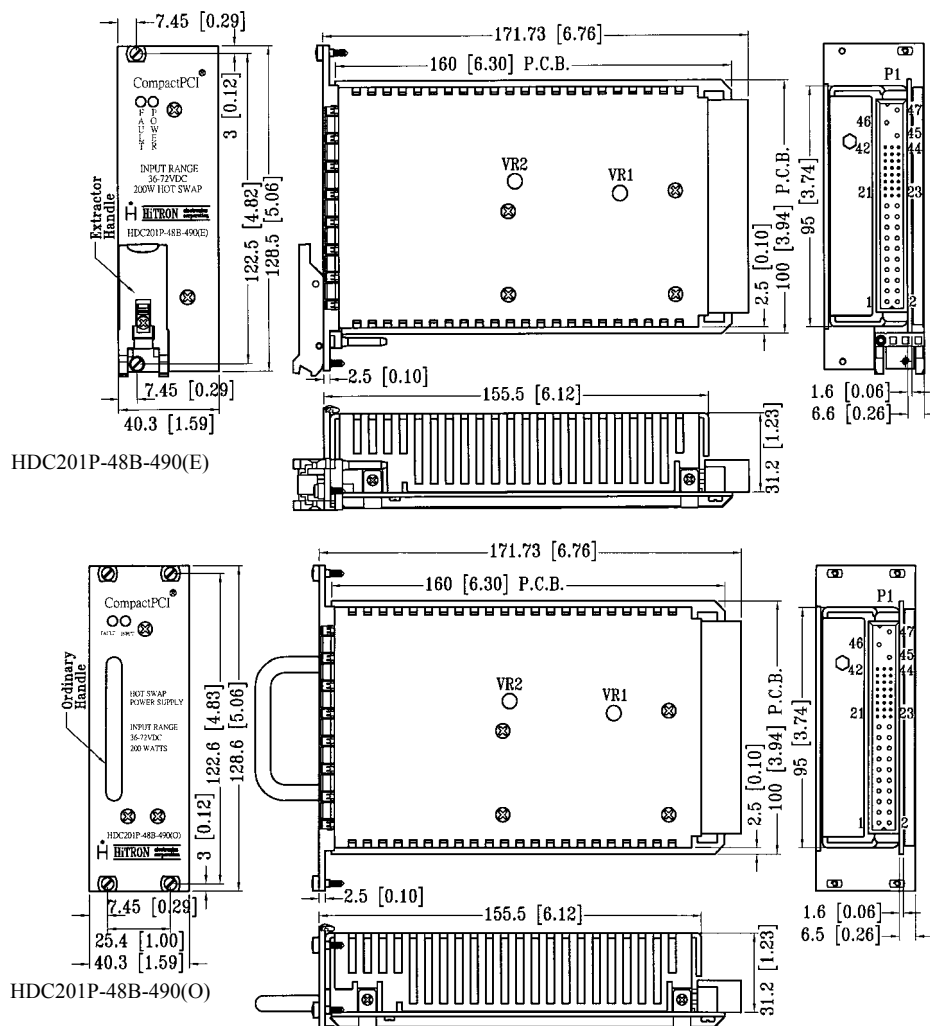
Symbol: " " OVP built-in. "@ Adjustable. "# Remote sensing. "=" Droop Current Sharing. "≡" 3rd wire Load Sharing.
 " " Installed with Or-ing diode. "▲" Magnetic Amplifier. "●" Installed with Post-regulator. "■" Common Choke.

Remark: Peak load less than 60sec. with duty cycle <10%.

Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 666.0 g (23.5 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	DC INPUT			QUAD OUTPUT														STATUS/CONTROL			
ASSIGNMENT	-Vin	+Vin	G	VO1	S+	S-	Adj.	C.S.	VO2	S+	Adj.	C.S.	VO3	S+	C.S.	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	47	46	45	1,2,3,4	30	34	29	35	13,14,15,16,17,18	33	32	41	20	36	44	21	5,6,7,8,9,10,11,12,19,22,24	27	38	39	42

Mating connector: PCIH47F400A1.



- 202W HALF SIZE 3U X 4HP
EUROCARD PACKAGE
- 36-72VDC NOMINAL 48VDC INPUT
- INTERNAL OR-ING DIODES FOR
N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 / FCC CLASS A
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

INPUT SPECIFICATION

Input Voltage: Typ. 36-72Vdc, nominal input 48Vdc.

Input Connector: Positronic 47-pin PCIH47M400A1.

Inrush Current: Typ. 20A at nominal input 48Vdc.(Active)

Input Current: 5.6A at nominal input 48Vdc.

Dielectric Withstand: Meet IEC 60950-1 regulation.

EMI: Meet CISPR EN 55022 Class A.

Remote ON/OFF: Available at [INH#] & [EN#] pins.

Power Fail Signal: Available at [FAL#] pin.

Status LED: <Green> means valid input or output voltage.
<Amber> means a critical fault.

Thermal Protection (OTP): Installed NTC for thermal
sensor at [DEG#] pin.

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typ. 202Watt continuous.
Output Connector: Positronic 47-pin PCIH47M400A1.
Line Regulation: Typ. 0.2%.
Load Regulation: Typ. $\pm 1-2.0\%$.
Noise & Ripple: Typ. 1% peak to peak or 50mV,
whichever is greater.
OVP: Built-in at all outputs.
Adjustability: Available at VO1,2&3.
Remote Sensing: Available at VO1,2&3.
Hot-Swap: Available.
N+1 Redundancy: Installed with OR-ing diodes at all
outputs for N+1 redundancy.
Current Sharing: Third-wire current sharing at VO1,2&3.
Power OK Signal: Available for all outputs.
Over Current Protection (OCP): Installed at each rail.
Overload Protection (OLP):
Fully protected against output overload or short circuit.
Typ. set at 105-130% max. load.
Consult the factory for special OLP setting.

Efficiency: Typical 77%. Switching Frequency: 305-330KHz. Circuit Topology: Forward circuit. Transient Response: Peak transient less than 200mV and returns to within 1% less than 200uS for 25% load-change. Safety Standard: IEC 60950-1 Class I. Construction: Eurocard 3U x 4HP x 160mm half-size CompactPCI Front Panel with Extractor handle.	Operating Temperature: 0 to +50°C at full load with specified air flow. Derates linearly to 50% at +70°C. Storage Temperature: -40°C to +85°C. Temperature Coefficient: Typ. $\pm 0.02\%/^{\circ}\text{C}$. Cooling: At least 30CFM (800LFM) moving air is required to achieve full rating power 200W in a confined area. Power Density: 7.40 Watts /Cubic Inch.
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NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.
(2) Due to requests in market and advances in technology, specifications subject to change without notification.



In application

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @★#≡				AUX. +VO2 ▲★#≡ @				AUX. +VO3▲★#≡ @					AUX. -VO4 ▲ ★=				
	Min.	Typ.	Volt.	Max.	Min	Typ.	Volt.	Max.	Min	Typ	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.
HDC202P-48B-490	2.0A	25A	+5V	30A	0A	10A	+3.3V	20A	0.3A	3A	+12V	5A	5.5A	0A	0.5A	-12V	1A	1.5A

Symbol: "★" OVP built-in. "@" Adjustable. "#" Remote sensing. "≡" 3rd- wire Load Sharing. "=" Droop Current Sharing. " " Installed with Or-ing diode.

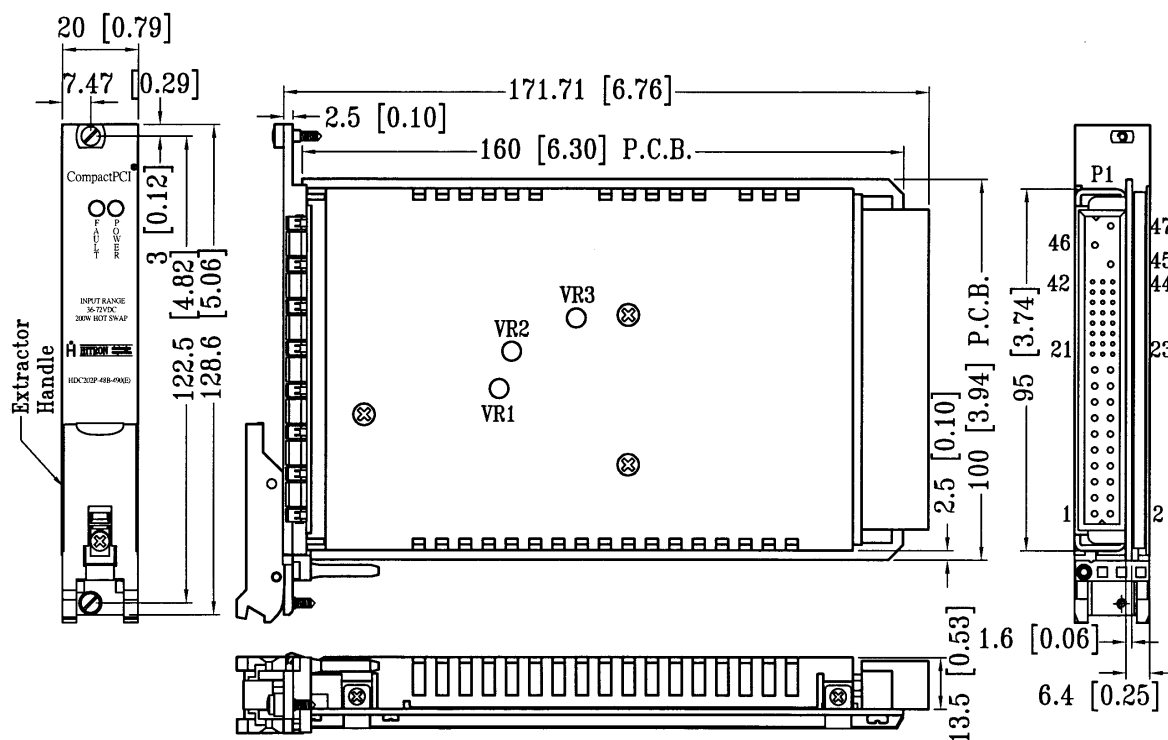
"▲" Magnetic Amplifier. "●" Installed with Post Regulator.

Remark: Peak load less than 60sec. with duty cycle <10%.

Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 469.0g (16.5 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	DC INPUT			QUAD OUTPUT												STATUS/CONTROL			
ASSIGNMENT	-Vin	+Vin	G	VO1	S+	S-	C.S.	VO2	S+	C.S.	VO3	S+	C.S.	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	47	46	45	1,2,3,4	30	34	35	13,14,15,16,17,18	33	41	20	36	44	21	5,6,7,8,9,10,11,12,19,24	27	38	39	42

Mating connector: PCIH47F400A1.



18-36VDC/36-72VDC INPUT RANGE DC-DC CONVERTER HOT-SWAP CompactPCI QUAD OUTPUT 250 WATTS ACTIVE CURRENT SHARING SWITCHING POWER SUPPLIES HDC250P-24B/48B SERIES



FEATURES:

- 250W 3U X 8HP EUROCARD PACKAGE
- 36-72VDC NOMINAL 48VDC INPUT
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 / FCC CLASS B
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 18-36Vdc, nominal input 24Vdc.
Typ. 36-72Vdc, nominal input 48Vdc.

Input Connector: Positronic 47-pin PCIH47M400A1.

Inrush Current: Peak 32.6A at nominal 24Vdc.
Typ. 20A at nominal 48Vdc.

Input Current: 13.7A at nominal input 24Vdc.
6.6A at nominal input 48Vdc.

Dielectric Withstand: Meet IEC 60950-1 regulation.

EMI: Meet EN 55022 / FCC Class B.

Remote ON/OFF: Available at [INH#] & [EN#] pins.

Power Fail Signal: Available at [FAL#] pin.

Status LED: <Green> means valid input voltage.
<Amber> means a critical fault.

Thermal Protection (OTP): Installed NTC for thermal sensor at [DEG#] pin.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Output Wattage: Typ. 250W continuous.

Output Connector: Positronic 47-pin PCIH47M400A1.

Line Regulation: Typ. 0.1%.

Load Regulation: Typ. $\pm 2.0\%$.

Noise & Ripple: Typ. 1% Pk.-Pk. or 50mV, whichever is greater.

OVP: Built-in at all outputs.

Adjustability: Available at VO1, 2 & 3.

Output Trim: Electrical trim available at VO1/2.[ADJ #]

Remote Sensing: Available at VO1, VO2 & VO3.

Hot-Swap: Available.

N+1 Redundancy: Installed with internal OR-ing diodes at all outputs for N+1 redundancy operation.

Current Sharing: Third-wire current sharing at VO1, 2&3.

Power OK Signal: Available for all outputs.

Over Current Protection (OCP): Installed in each rail.

Overload Protection (OLP): Fully protected against output overload or short circuit. Typical 120% max. load. Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 74%-77 %.

Switching Frequency: 120K Hz.

Circuit Topology: Forward circuit.

Transient Response: Peak transient less than 100mV and recovers within 2mS for 25% load-change.

Safety Standard: IEC 60950-1 Class I.

Construction: Eurocard 3U X 8HP X 160mm
CompactPCI format. Front panel with either Ordinary handle or Extractor handle.

Operating Temperature: 0 to +50 °C at full load with specified air flow.
Derates linearly to 50% at +70°C.

Storage Temperature: -40 to +85 °C.

Temperature Coefficient: Typ. $\pm 0.02\%$ / °C.

Cooling: At least 16CFM(500LFM) moving air is required to achieve full rating power 250W in a confined area.

Power Density: 4.58 Watts/ Cubic Inch.

NOTE: (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2) Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡				AUX. +VO2 ▲@ #≡				AUX. +VO3 ▲@ #≡					AUX. -VO4 ● ■ =				
	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.
HDC250P-24B-490(E)	2A	25A	+5V	33A	0A	18A	+3.3V	33A	0A	5A	+12V	5.5A	6A	0A	0.5A	-12V	1A	1.5A
HDC250P-48B-490(E)	2A	25A	+5V	33A	0A	18A	+3.3V	33A	0A	5A	+12V	5.5A	6A	0A	0.5A	-12V	1A	1.5A
HDC250P-48B-490(O)	2A	25A	+5V	33A	0A	18A	+3.3V	33A	0A	5A	+12V	5.5A	6A	0A	0.5A	-12V	1A	1.5A

Symbol: " " OVP built-in. "@ " Adjustable. "# " Remote sensing. "≡" 3rd wire Load Sharing. " " Installed with Or-ing diode.

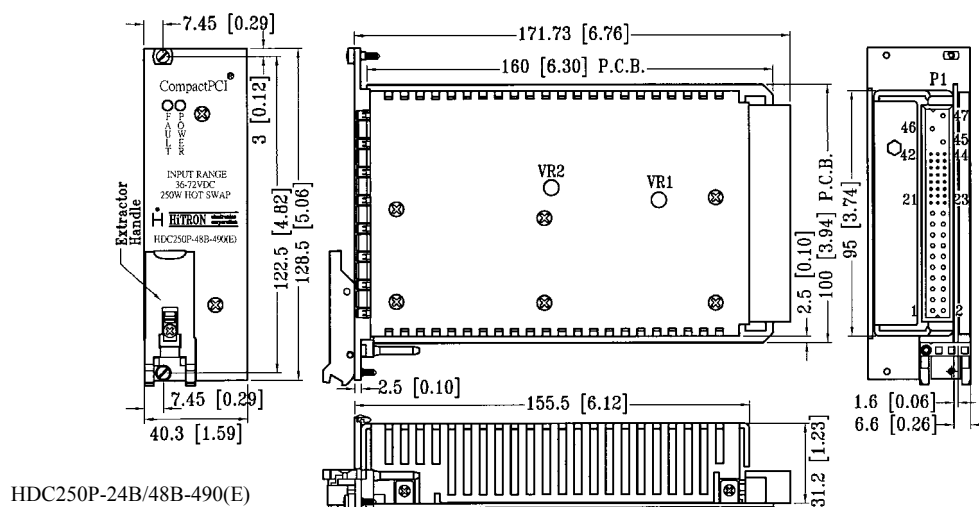
"▲" Magnetic Amplifier. "●" Installed with Post-regulator. "■" Common Choke.

Remark: Peak load less than 60sec. with duty cycle <10%.

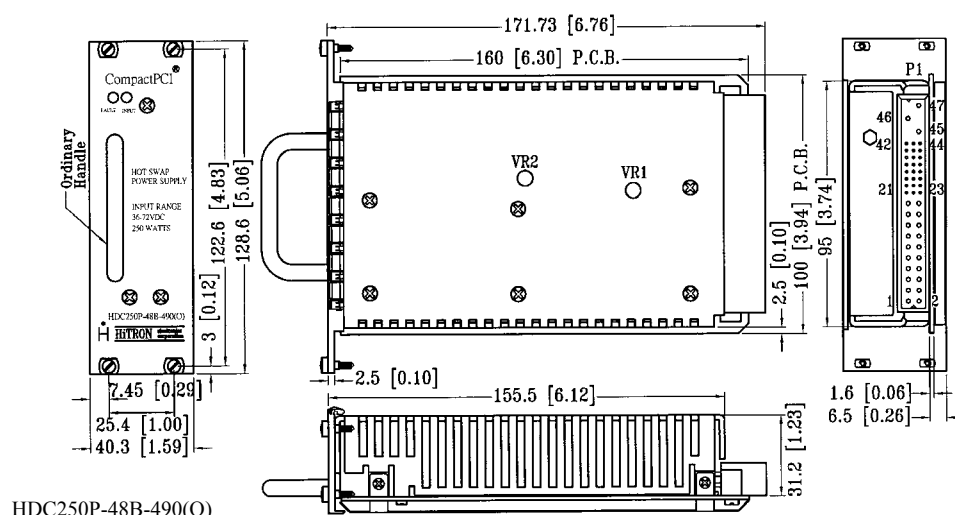
Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 666.0 g (23.5 Oz.)



HDC250P-24B/48B-490(E)



HDC250P-48B-490(O)

INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	DC INPUT			QUAD OUTPUT														STATUS/CONTROL			
ASSIGNMENT	-Vin	+Vin	G	VO1	S+	S-	Adj.	C.S.	VO2	S+	Adj.	C.S.	VO3	S+	C.S	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	47	46	45	1,2,3,4	30	34	29	35	13,14,15,16,17,18	33	32	41	20	36	44	21	5,6,7,8,9,10,11,12,19,22,24	27	38	39	42

Mating connector: PCIH47F400A1.



36-72VDC INPUT RANGE DC-DC CONVERTER HOT-SWAP CompactPCI QUAD OUTPUT 300 WATTS ACTIVE CURRENT SHARING SWITCHING POWER SUPPLIES HDC301P-48B SERIES



FEATURES:

- 300W 3U X 8HP EUROCARD PACKAGE
- 36-72VDC NOMINAL 48VDC INPUT
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 FCC CLASS A
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 36-72Vdc, nominal input 48Vdc.
Input Connector: Positronic 47-pin PCIH47M400A1.
Inrush Current: Peak 46.2A at nominal 48Vdc.
Input Current: 7.58A at nominal input 48Vdc at full load.
 0.16A at nominal input 48Vdc at no-load.
Dielectric Withstand: Meet IEC 60950-1 regulation.
EMI: Meet EN 55022 FCC Class A.
Remote ON/OFF: Available at [INH#] & [EN#] pins.
Power Fail Signal: Available at [FAL#] pin.
Status LED: <Green> means valid input voltage.
 <Amber> means a critical fault.
Thermal Protection (OTP): Installed NTC for thermal sensor at [DEG#] pin.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typ. 300W continuous.
Output Connector: Positronic 47-pin PCIH47M400A1.
Line Regulation: Typ. 0.01%.
Load Regulation: Typ. ± 0.2 to $\pm 1.0\%$.
Noise & Ripple: Typ. 1% Pk.-Pk. or 50mV, whichever is greater.
OVP: Built-in at all outputs.
Adjustability: Available at VO1, 2 & 3.
Remote Sensing: Available at VO1 & sVO2.
Hot-Swap: Available.
N+1 Redundancy: Installed with internal OR-ing diodes at all outputs for N+1 redundancy operation.
Current Sharing: Third-wire current sharing at VO1,2&3.
Over Current Protection (OCP): Installed in each rail.
Overload Protection (OLP): Fully protected against output overload or short circuit. Typical 120% max. load. Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 83 %.
Switching Frequency: 130K Hz.
Circuit Topology: Forward circuit.
Transient Response: Peak deviation is 160mV and recovers within 0.256mS for 25% load-change.
Safety Standard: IEC 60950-1 Class I.
Construction: Eurocard 3U X 8HP X 160mm CompactPCI format.

Operating Temperature: 0 to +50 °C at full load with specified air flow.
 Derates linearly to 50% at +70°C.
Storage Temperature: -40 to +85 °C.
Temperature Coefficient: Typ. $\pm 0.02\%$ / °C.
Cooling: At least 700 LFM moving air is required to achieve full rating power 300W in a confined area.
Power Density: 7.7 Watts/ Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡				AUX. +VO2 ▲@ #≡				AUX. +VO3 ▲@ ≡					AUX. -VO4 ▲				
	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max	Pk.	Min.	Typ.	Volt.	Max.	Pk.
HDC301P-48B-490(E)	2.0A	26.8A	+5V	40A	0A	20A	+3.3V	40A	0A	7.5A	+12V	10A	11A	0A	1A	-12V	1.5A	1.7A

Symbol: " " OVP built-in. "@ " Adjustable. "# " Remote sensing. "≡" 3rd wire Load Sharing. " " Installed with Or-ing diode.
 "▲" Magnetic Amplifier.

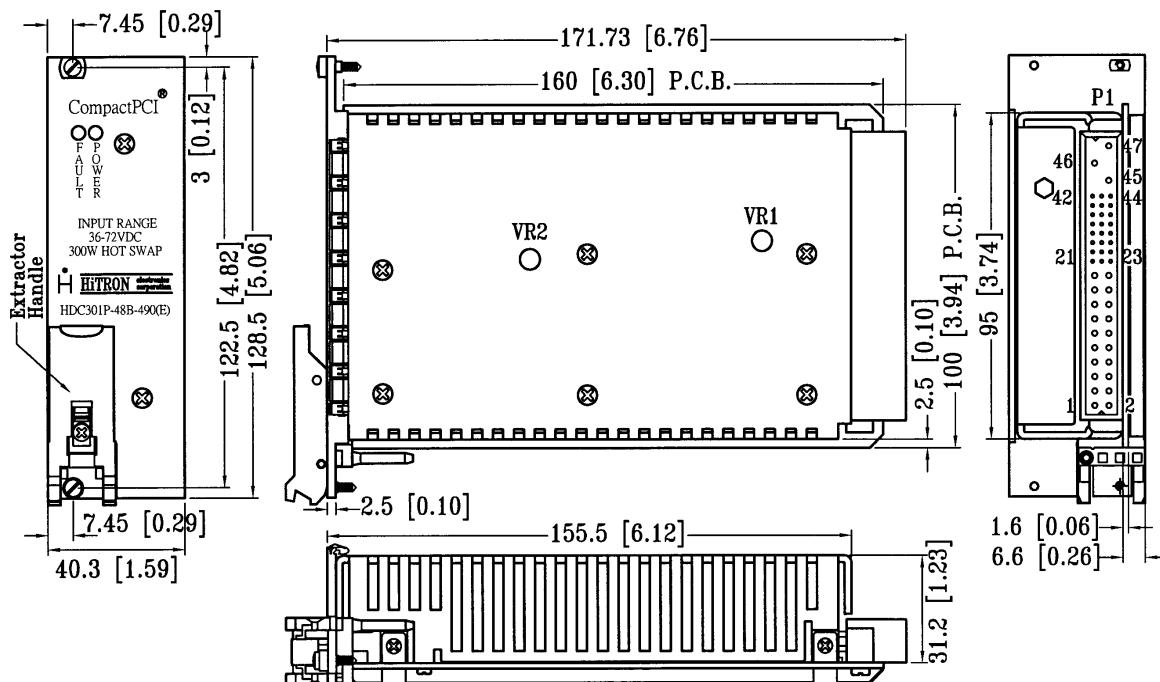
Remark: Peak load less than 60sec. with duty cycle <10%.

Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

Total output maximum 300 W; Total combined current of +5 V and + 3.3 V not large than 50 A

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 666.0 g (23.5 Oz.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	DC INPUT			QUAD OUTPUT														STATUS/CONTROL			
ASSIGNMENT	-Vin	+Vin	G	VO1	S+	S-	Adj.	C.S.	VO2	S+	Adj.	C.S.	VO3	S+	C.S.	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	47	46	45	1,2,3,4	30	34	29	35	13,14,15,16,17 18	33	32	41	20	36	44	21	5,6,7,8,9,10,11,12,19 24	27	38	39	42

Mating connector: PCIH47F400A1.



- 382W 6U X 8HP EUROCARD PACKAGE
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- ACTIVE CURRENT SHARING
- CONSTANT CURRENT LIMIT
- EMI MEET EN 55022 CLASS A
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG



OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡					AUX. +VO2 @ #≡					AUX. +VO3 ▲@ #≡					AUX. -VO4 ▲@				
	Min.	Typ.	Volt.	Max	Pk.	Min.	Typ.	Volt.	Max	Pk.	Min.	Typ.	Volt.	Max	Pk.	Min.	Typ.	Volt.	Max	Pk.
HDC350P-24B-490	0A	33A	+5V	50A	50A	0A	33A	+3.3V	50A	50A	0A	7A	+12V	9A	10A	0A	2A	-12V	4A	5A

Symbol: " " OVP built-in. "@" Adjustable. "#" Remote sensing. "≡" Active Load Sharing.

" " Installed with Or-ing diode. "▲" Magnetic Amplifier.

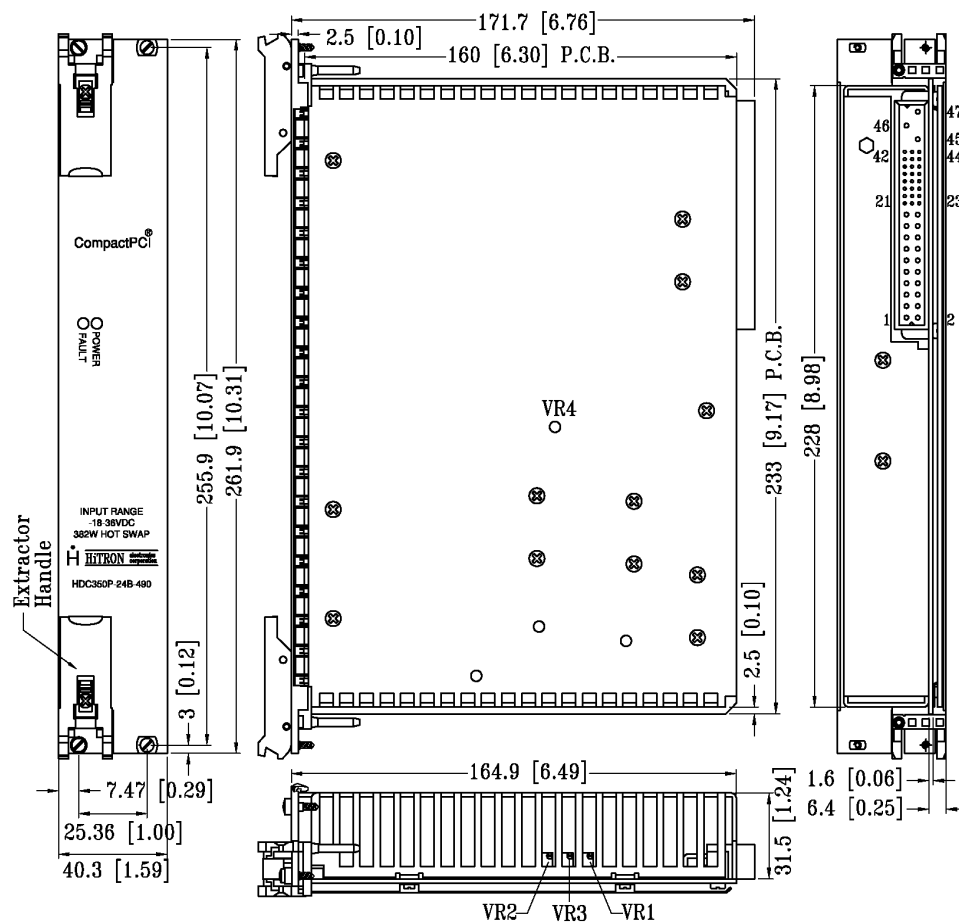
Remark: Peak load less than 60sec. with duty cycle <10%.

Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

Total Max. Power of VO1 and VO2 must be less than 300Watt.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 1.72kg (3.78 lb.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	DC INPUT			QUAD OUTPUT													STATUS/CONTROL				
ASSIGNMENT	+Vin	-Vin	G	VO1	VO1 S+	VO1 S-	VO1 Adj.	VO1 C.S.	VO2	VO2 S+	VO2 Adj.	VO2 C.S.	VO3	VO3 S+	VO3 C.S	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	46	47	45	1,2,3,4	30	34	29	35	13,14,15,16,17,18	33	32	41	20	36	44	21	5,6,7,8,9,10,11,12,19,24	27	38	39	42

Mating connector: PCIH47F400A1.



36-72VDC INPUT RANGE DC-DC CONVERTER HOT-SWAP CompactPCI QUAD OUTPUT 400 WATTS ACTIVE CURRENT SHARING SWITCHING POWER SUPPLIES HDC400P-48B-490 SERIES



FEATURES:

- 400W 6U X 8HP EUROCARD PACKAGE
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 CLASS A
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 36-72Vdc, nominal input 48Vdc.
OVP shutdown at 75Vdc & UVP shutdown at 36Vdc.

Input Connector: Positronic 47-pin PCIH47M400A1.

Soft Start: Installed.

Inrush Current: Typ. 7.2A at 72Vdc.

Input Current: 11.8A at nominal input 48Vdc.

Dielectric Withstand: Meet IEC 60950-1 regulation.

Transient Protection: MOV withstands transient as specified by EN 61000-4-4 level 3.

EMI: Meet CISPR EN 55022 Class A.

Remote ON/OFF: Available at [INH#] & [EN#] pins.

Power Fail Signal: Available at [FAL#] pin.

Status LED: <Green> means valid input voltage.
<Amber> means a critical fault.

Thermal Protection (OTP): Installed NTC for thermal sensor at [DEG#] pin. Thermostat will shutdown the PSU if >100°C.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Output Power: Typ. 400-450W continuous.

Output Connector: Positronic 47-Pin PCIH47M400A1.

Line Regulation: Typ. 0.1%.

Load Regulation: VO1 typ. $\pm 1.0\%$, VO2 typ. $\pm 1.5\%$,
VO3 & VO4 typ. $\pm 3.0-4.0\%$.

Noise & Ripple: Typ. 1% peak-peak or 50mV, whichever is greater.

OVP: Built-in at all outputs.(Latch).

Adjustability: Available at VO1,VO2 & VO3.

Output Trim: Electrical trim available at VO1/VO2.[ADJ #].

Remote Sensing: Available at VO1,VO2 & VO3.

Hot-Swap: Available.

N+1 Redundancy: Available with OR-ing diodes at all outputs for N+1 redundancy.

Current Sharing: Third-wire current sharing at VO1,2&3.

Power OK Signal: Available for all outputs.

Over Current Protection (OCP): Installed at each rail.

Overload Protection (OLP): Fully protected against output overload or short circuit. Typ. set at 120-150% max. load. Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 80-82 %.

Switching Frequency: 120K Hz.

Circuit Topology: Forward circuit.

Transient Response: Peak transient less than 250mV and recovers within 1.0mS after 25% load-change.

Safety Standard: IEC 60950-1 Class I.

Construction: Eurocard 6U X 8HP X 160mm
CompactPCI format. Front Panel with Extractor handle.

Operating Temperature: 0 to +50 °C at full load with specified air flow. Derates linearly to 50% at +70 °C.

Storage Temperature: -40 to +85 °C.

Temperature Coefficient: Typ. $\pm 0.02\%$ / °C.

Cooling: At least 600LFM/20CFM moving air is required to achieve full rating power 400W in a confined area.

Power Density: 4.01 Watts/ Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.



36-72VDC INPUT RANGE DC-DC CONVERTER HOT-SWAP CompactPCI QUAD OUTPUT 500 WATTS ACTIVE CURRENT SHARING SWITCHING POWER SUPPLIES HDC500P-48B SERIES



FEATURES:

- 500W 6U X 8HP EUROCARD PACKAGE
- 36-72VDC NOMINAL 48VDC INPUT
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- THIRD-WIRE CURRENT SHARING
- EMI MEET EN 55022 CLASS A
- CE MARKING COMPLIANCE
- FULLY COMPLIANT WITH PICMG

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typ. 36-72Vdc, nominal input 48Vdc.
OVP shutdown at 75Vdc & UVP shutdown at 36Vdc.
Input Connector: Positronic 47-pin PCIH47M400A1.
Soft Start: Installed.
Inrush Current: Typ. 11A at 48Vdc.
Input Current: 13.2A at nominal input 48Vdc.
Dielectric Withstand: Meet IEC 60950-1 regulation.
Transient Protection: MOV withstands transient as specified by EN 61000-4-4 level 3.
EMI: Meet CISPR EN55022 Class A.
Remote ON/OFF: Available at [INH#] & [EN#] pins.
Power Fail Signal: Available at [FAL#] pin.
Status LED: <Green> means valid input voltage.
<Amber> means a critical fault.
Thermal Protection (OTP): Installed NTC for thermal sensor at [DEG#] pin. Thermostat will shutdown the PSU if >100°C.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Power: Typ. 500W continuous.
Output Connector: Positronic 47-Pin PCIH47M400A1.
Line Regulation: Typ. 0.1%.
Load Regulation: VO1 typ. $\pm 1.0\%$, VO2 typ. $\pm 1.5\%$.
VO3 & VO4 typ. $\pm 3.0-4.0\%$.
Noise & Ripple: Typ. 1% peak-peak or 50mV, whichever is greater.
OVP: Built-in at all outputs.(Latch).
Adjustability: Available at VO1,VO2, VO3 & VO4.
Output Trim: Electrical trim available at VO1/ VO2.[ADJ #].
Remote Sensing: Available at VO1,VO2 & VO3.
Hot-Swap: Available.
N+1 Redundancy: Available with OR-ing diodes at all outputs for N+1 redundancy.
Current Sharing: Third-wire current sharing at VO1, 2 & 3.
Power OK Signal: Available for all outputs.
Over Current Protection (OCP): Installed at each rail.
Overload Protection (OLP): Fully protected against output overload or short circuit. Typ. set at 120-150% max. load. Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 80 %.
Switching Frequency: 120K Hz.
Circuit Topology: Forward circuit.
Transient Response: Peak transient less than 250mV and recovers within 1.0mS after 25% load-change.
Safety Standard: IEC 60950-1 Class I.
Construction: Eurocard 6U X 8HP X 160mm
CompactPCI format. Front Panel with Extractor handle.
Operating Temperature: 0 to +50 °C at full load with specified air flow. Derates linearly to 50% at +70 °C
Storage Temperature: -40 to +85 °C.
Temperature Coefficient: Typ. $\pm 0.02\%$ / °C.
Cooling: At least 800LFM moving air is required to achieve full rating power 500W in a confined area.
Power Density: 4.50 Watts/ Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.

(2)Due to requests in market and advances in technology, specifications subject to change without notification.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE / CURRENT RATINGS CHART

QUAD OUTPUT

MODEL NO.	MAIN +VO1 @ #≡				AUX. +VO2 ▲@ #≡				AUX. +VO3 ▲≡# @					AUX. -VO4 ▲ @				
	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Min.	Typ.	Volt.	Max.	Pk.	Min.	Typ.	Volt.	Max.	Pk.
HDC500P-48B-490	4A	50A	+5V	60A	0A	30A	+3.3V	60A	0A	10A	+12V	14A	15A	0A	3A	-12V	4A	5A

Symbol: " " OVP built-in. "@ " Adjustable. "# " Remote sensing. "≡" 3rd-wire Load Sharing.

" " Installed with Or-ing diode. "▲" Magnetic Amplifier. "●" Installed with Post-regulator. "■" Common Choke.

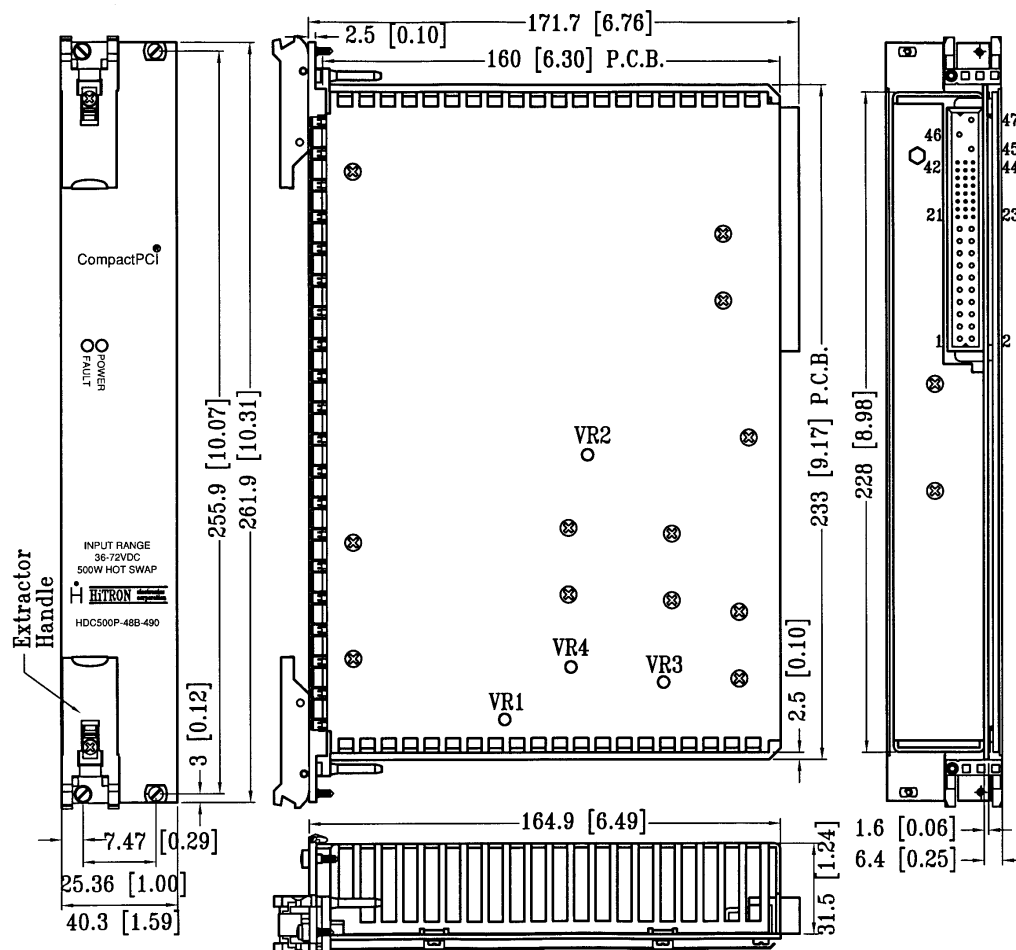
Remark: Peak load less than 60sec. with duty cycle <10%.

Max. load is the continuous operating load of each rail. But the max. load of each rail can't be drawn from all outputs at the same time.

Total max. power of VO1 and VO2 should be less than 350W.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 1.42kg (3.13 lb.)



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

	DC INPUT			QUAD OUTPUT														STATUS/CONTROL			
ASSIGNMENT	+Vin	-Vin	G	VO1	S+	S-	Adj.	C.S.	VO2	S+	Adj.	C.S.	VO3	S+	C.S.	VO4	DC COM	EN#	DEG#	INH#	FAL#
CNTR & PIN #	46	47	45	1,2, 3,4	30	34	29	35	13,14, 15,16, 17 18	33	32	41	20	36	44	21	5,6,7,8,9, 10,11,12, 19 24	27	38	39	42

Mating connector: PCIH47F400A1.

HiTRON

ON-BOARD UNIVERSAL INPUT AC-DC ENCAPSULATED MODULAR POWER SUPPLIES 5 WATTS SINGLE & DUAL OUTPUT HAM05S & HAM05D SERIES



FEATURES:

- **ON-BOARD AC/DC MODULAR POWER SUPPLIES**
- **UNIVERSAL AC INPUT RANGE**
- **COMPACT IN SIZE**
- **MEET UNIVERSAL SAFETY STANDARDS**
- **EMI MEET CISPR PUB.22 / FCC CLASS B**
- **CE MARKING COMPLIANCE**

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Frequency: 47-63 Hz. (50/60Hz.Nom.).
Input Current: 0.15A at 115Vac./0.07A at 230Vac.
Inrush Current: 32.5A peak at 230Vac.
Input Fuse: Use external fuse. 1.0A/250Vac for the primary fuse is suggested.
Dielectric Withstand: Meet IEC950.
3,000Vac-Output/Input.
1,500Vac-Input/GND.
500Vac-Output/GND.
EMI: Meet CISPR PUB.22 / FCC Class B.
Hold-up time: 20 mS at 115Vac, 80mS at 230Vac.
Earth Leakage Current: Less than 3.5mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart
Output Wattage: Typical 5Watts.
Output Indicator: LED.
Line Regulation: Various with output voltages.
HAM05S $\pm 0.1\%$ typical.
HAM05D $\pm 0.5\%$ typical.
Load Regulation: Various with output voltage.
HAM05S $\pm 1.0\%$ typical.
HAM05D $\pm 2.0\%$ typical.
Noise & Ripple: 1.0% typical peak to peak.
OVP: Built-in on main output.
Adjustability: From -10% of main output till OVP.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typ. 64%-78%. (Various with output voltage).
Switching Frequency: 75K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Typical peak deviation 250mV,
Recovery time < 3mS for a 25% load change.
Case: Impact resistant thermo-plastic enclosure.
Power Density: 1.61 Watts. / Cubic inch.
Safety Standard: EN60950/ UL1950 Class I.
MTBF: 110,000 hours. Mil Std 217, 25°C.
Commercial Grade only.
Operating Temperature: -10 to +70°C range.
-10°C to +50°C full load without derating.
From +50°C, derating linearly to half load at +70°C.
(Refer to Derating Chart.)
Storage Temperature: -20°C to +85°C.
Temperature Coefficient: $\pm 0.03\%$ /°C.
Humidity: Up to 95%RH, Non-condensing.
Cooling: Convection cooling for +50°C at full load.
At least 100LFM moving air is recommended
for full load > +50°C in a confined area.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load Regulation measured from Full-Load (F-L) to Half-Load (H-L) at nominal input and others loaded at half load.

(3) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory

OUTPUT VOLTAGE/ CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	VO1 @		
	TYP.	VOLT.	PEAK
HAM05S-033130	1.30A	3.3V	1.59A
HAM05S-050100	1.00A	5.0V	1.20A
HAM05S-090060	0.60A	9.0V	0.72A
HAM05S-120045	0.45A	12.0V	0.54A
HAM05S-150036	0.36A	15.0V	0.43A
HAM05S-180030	0.30A	18.0V	0.36A
HAM05S-240022	0.22A	24.0V	0.26A

DUAL OUTPUT

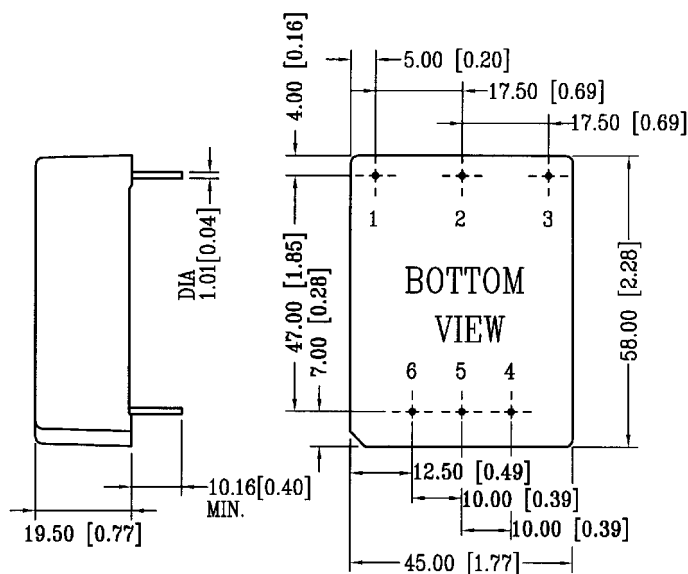
MODEL NO.	+VO1 @			-VO2		
	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.
HAM05D-033064	0.64A	+3.3V	0.73A	0.64A	-3.3V	0.73A
HAM05D-050050	0.50A	+5.0V	0.57A	0.50A	-5.0V	0.57A
HAM05D-090030	0.30A	+9.0V	0.34A	0.30A	-9.0V	0.34A
HAM05D-120022	0.22A	+12.0V	0.25A	0.22A	-12.0V	0.25A
HAM05D-150018	0.18A	+15.0V	0.20A	0.18A	-15.0V	0.20A

Symbols: " " OVP built-in. "@ " Adjustable. "|| " Double Feedback.

Note: (1) Max. (maximum load) is the continuous operating load of each rail, but the max. load of each rail can not be drawn from all outputs at the same time.
(2) Peak output, less than 60 Sec. with duty cycle <10%.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 107.0g (3.77 Oz.)

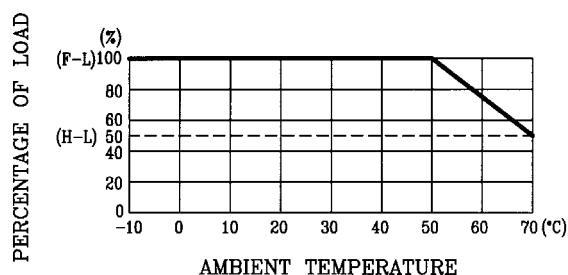


CASE SIZE: AM01

PIN ASSIGNMENT

PIN NO.	SINGLE	DUAL
PIN #1.	AC-GROUND	AC-GROUND
PIN #2.	AC-NEUTRAL	AC-NEUTRAL
PIN #3.	AC-LINE	AC-LINE
PIN #4.	+VO1	+VO1
PIN #5.	NO PIN	DC-COM
PIN #6.	DC-COM	-VO2

DERATING CHART



HiTRON

ON-BOARD UNIVERSAL INPUT AC-DC ENCAPSULATED MODULAR POWER SUPPLIES 10 WATTS SINGLE & DUAL OUTPUT HAM10S & HAM10D SERIES



FEATURES:

- ON-BOARD AC/DC MODULAR POWER SUPPLIES
- UNIVERSAL AC INPUT RANGE
- COMPACT IN SIZE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB.22 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac. (or 110-340Vdc).
Input Frequency: 47-63 Hz. (50/60Hz.Nom.) or DC.
Input Current: 0.3A at 115Vac./ 0.13A at 230Vac.
Inrush Current: 32.5A peak at 230Vac.
Input Fuse: Use external fuse. 1.0A/250Vac for primary fuse is suggested.
Dielectric Withstand: Meet IEC950.
3,000Vac-Output/Input.
1,500Vac-Input/GND.
500Vac-Output/GND.
EMI: Meet CISPR PUB.22/ FCC Class B.
Hold-up time: 20mS at 115Vac, 80mS at 230Vac.
Earth Leakage Current: Less than 3.5mA at 230Vac.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 10 Watts.
Output Indicator: LED.
Line Regulation: Various with output voltage.
HAM10S typical $\pm 0.1\%$.
HAM10D typical $\pm 0.2\%$.
Load Regulation: Various with output voltage.
HAM10S typical $\pm 1.0\%$.
HAM10D typical $\pm 2.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in on main output.
Adjustability: From -10% of main output till OVP.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 67-79%. (Various with output voltage)
Switching Frequency: 75K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Typical peak deviation 250mV,
Recovery time < 3mS for a 25% load change.
Case: Impact resistant thermo-plastic enclosure.
Weight: 120g (4.23 Oz).
Power Density: 2.51 Watts. / Cubic inch.
Safety Standard: EN60950/ UL1950 Class I.
MTBF: 100,000 hours. Mil Std 217, 25°C.

Operating Temperature: -10 to +70°C range.
-10°C to +50°C full load without derating.
From +50°C, derating linearly to half load at +70°C.
(Refer to Derating Chart.)
Storage Temperature: -20°C to +85°C.
Temperature Coefficient: $\pm 0.02\%$ /°C.
Humidity: Up to 95%RH, Non-condensing.
Cooling: Convection cooling for +50°C at full load.
At least 100LFM moving air is recommended
for full load > +50°C in a confined area.
Commercial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load Regulation measured from Full-Load (F-L) to Half-Load (H-L) at nominal input and others loaded at half load.

(3) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE/ CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	VO1 @ ★		
	TYP.	VOLT.	PEAK
HAM10S-033243	2.43A	3.3V	2.91A
HAM10S-050200	2.00A	5.0V	2.44A
HAM10S-090112	1.12A	9.0V	1.34A
HAM10S-120090	0.90A	12.0V	1.08A
HAM10S-150072	0.72A	15.0V	0.86A
HAM10S-240045	0.45A	24.0V	0.54A
HAM10S-480025	0.25A	48.0V	0.30A

DUAL OUTPUT

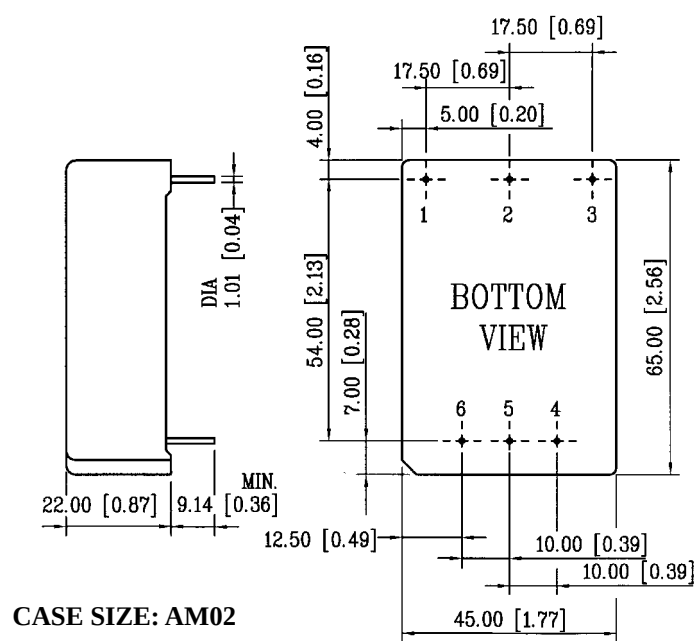
MODEL NO.	+VO1 @ ★			-VO2		
	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.
HAM10D-033120	1.20A	+3.3V	1.38A	1.20A	-3.3V	1.38A
HAM10D-050100	1.00A	+5.0V	1.15A	1.00A	-5.0V	1.15A
HAM10D-120045	0.45A	+12.0V	0.51A	0.45A	-12.0V	0.51A
HAM10D-150035	0.35A	+15.0V	0.40A	0.35A	-15.0V	0.40A

Symbols: "★" OVP built-in. "@" Adjustable. "||" Double Feedback.

Note: (1) Max. (maximum load) is the continuous operating load of each rail, but the max. load of each rail can not be drawn from all outputs at the same time.
(2) Peak output, less than 60 Sec. with duty cycle <10%.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 120.0g (4.23 Oz.)

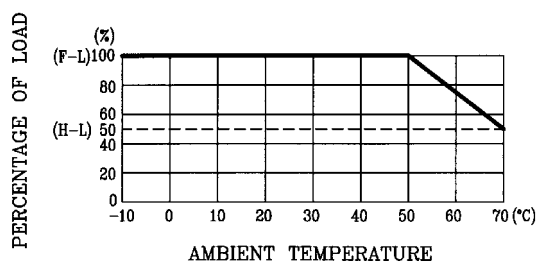


CASE SIZE: AM02

PIN ASSIGNMENT

PIN NO.	SINGLE	DUAL
PIN #1.	AC-GROUND	AC-GROUND
PIN #2.	AC-NEUTRAL	AC-NEUTRAL
PIN #3.	AC-LINE	AC-LINE
PIN #4.	+ VO1	+ VO1
PIN #5.	NO PIN	DC-COM
PIN #6.	DC-COM	-VO2

DERATING CHART





- **ON-BOARD AC/DC MODULAR POWER SUPPLIES**
- **UNIVERSAL INPUT RANGE**
- **COMPACT IN SIZE**
- **MEET UNIVERSAL SAFETY STANDARDS**
- **EMI MEET CISPR PUB.22 / FCC CLASS B**
- **CE MARKING COMPLIANCE**

Operating Temperature: -10 to +70°C range.
 -10°C to +50°C full load without derating.
 From +50°C, derating linearly to half load at +70°C.
 (Refer to Derating Chart.)

Storage Temperature: -20°C to +85°C.

Temperature Coefficient: ±0.03% /°C.

Humidity: Up to 95%RH, Non-condensing.

Cooling: Convection cooling for +50°C at full load.
 At least 100LFM moving air is recommended
 for full load > +50°C in a confined area.

Commercial Grade only.



OUTPUT VOLTAGE/ CURRENT RATINGS CHART

TRIPLE OUTPUT

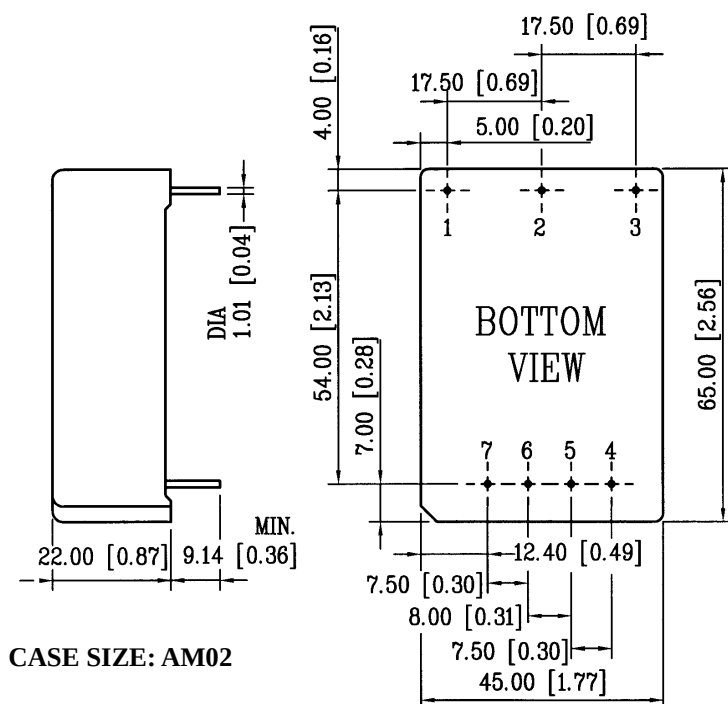
MODEL NO.	+VO1 @★			+VO2 †			-VO3		
	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.
HAM10T-5/09	1.0A	+5.0V	1.15A	0.27A	+9.0V	0.31A	0.27A	-9.0V	0.31A
HAM10T-5/12	1.0A	+5.0V	1.15A	0.25A	+12.0V	0.28A	0.25A	-12.0V	0.28A
HAM10T-5/15	1.0A	+5.0V	1.15A	0.20A	+15.0V	0.23A	0.20A	-15.0V	0.23A
HAM10T-5/24	1.0A	+5.0V	1.15A	0.12A	+24.0V	0.14A	0.12A	-24.0V	0.14A
HAM10T-3/05	1.0A	+3.3V	1.15A	0.40A	+5.0V	0.46A	0.40A	-5.0V	0.46A
HAM10T-3/12	1.0A	+3.3V	1.15A	0.25A	+12.0V	0.29A	0.25A	-12.0V	0.29A
HAM10T-3/15	1.0A	+3.3V	1.15A	0.20A	+15.0V	0.23A	0.20A	-15.0V	0.23A
HAM10T-3/5,12	1.0A	+3.3V	1.15A	0.40A	+5.0V	0.46A	0.25A	-12.0V	0.28A
HAM10T-3/24	1.0A	+3.3V	1.15A	0.12A	+24.0V	0.14A	0.12A	-24.0V	0.14A

Symbols: "★" OVP built-in. "@" Adjustable. "||" Double Feedback. "†" Stacked on main O/P.

Note: (1) Max. (maximum load) is the continuous operating load of each rail, but the max. load of each rail can not be drawn from all outputs at the same time.
(2) Peak output, less than 60 Sec. with duty cycle <10%.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 120.0g (4.23 Oz.)

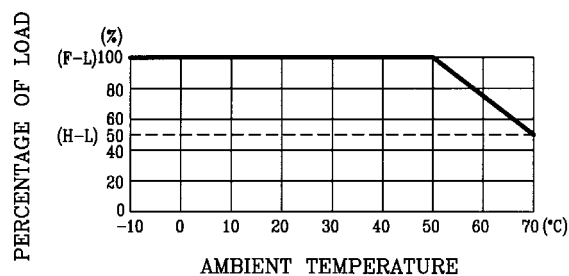


CASE SIZE: AM02

PIN ASSIGNMENT

PIN NO.	TRIPLE
PIN #1	AC-GROUND
PIN #2	AC-NEUTRAL
PIN #3	AC-LINE
PIN #4	+ VO2
PIN #5	+ VO1
PIN #6	DC-COM
PIN #7	- VO3

DERATING CHART





ON-BOARD UNIVERSAL INPUT AC-DC ENCAPSULATED MODULAR POWER SUPPLIES 16 WATTS SINGLE & DUAL OUTPUT HAM16S & HAM16D SERIES



FEATURES:

- ON-BOARD AC/DC MODULAR POWER SUPPLIES
- UNIVERSAL AC INPUT RANGE
- COMPACT IN SIZE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB.22/ FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: 90-264Vac.
Input Frequency: 47-63 Hz. (50/60 Hz. Nom.)
Input Current: Typical 0.33A at 115Vac/0.16A at 230Vac.
Inrush Current: 32.5A typical peak @ 230Vac.
Input Fuse: Use external fuse. 1.0A/250Vac. for the primary fuse is suggested.
Dielectric Withstand: Meet IEC950.
 3,000Vac-Output/Input.
 1,500Vac-Input/GND.
 500Vac-Output/GND.
EMI: Meet CISPR PUB.22 / FCC Class B.
Hold-up time: Typical 20mS at 115Vac, 120mS at 230Vac.
Earth Leakage Current: Less than 3.5mA at 230Vac.
Remote On/Off: TTL/CMOS-Compatible Output Control.
Positive Logic version for Standard set up:
 ON(Enable)=Open(or 2.5-5.0Vdc above Com)
 OFF(Disable)=Short(or 0-0.8Vdc above Com)
Negative Logic version option available by adding a "N" suffix to the end of Model #.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 12-17 Watts.
Output Indicator: LED.
Line Regulation: Various with output voltage.
 HAM16S typical $\pm 0.1\%$.
 HAM16D typical $\pm 0.5\%$.
Load Regulation: Various with output voltage.
 HAM16S typical $\pm 1.0\%$.
 HAM16D typical $\pm 2.0-4.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in on main output.
Adjustability: From -10% of main output till OVP.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 125-150% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 70-82%. (Various with output voltage).
Switching Frequency: 83K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Typical peak deviation 250mV,
 Recovery time < 3mS for a 25% load change.
Case: Impact resistant thermo-plastic enclosure.
Power Density: 3.10Watts. / Cubic inch.
Safety Standard: EN60950/ UL1950 Class I.
MTBF: 110,000 hours. Mil Std 217, 25°C.

Operating Temperature: -10 to +70°C range.
 -10°C to +50°C full load without derating.
 From +50°C, derating linearly to half load at +70°C.
 (Refer to Derating Chart.)
Storage Temperature: -20°C to +85°C.
Temperature Coefficient: 0.02% /°C.
Humidity: Up to 95%RH, Non-condensing.
Cooling: Convection cooling for +50°C at full load.
 At least 100LFM moving air is recommended for full load >+50°C in a confined area.
Commercial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load Regulation measured from Full-Load (F-L) to Half-Load (H-L) at nominal input and others loaded at half load.

(3) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE/ CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	VO1 ★ @		
	TYP.	VOLT.	PEAK
HAM16S-033370	3.70A	3.3V	4.44A
HAM16S-050300	3.00A	5.0V	3.60A
HAM16S-090170	1.70A	9.0V	2.04A
HAM16S-120135	1.35A	12.0V	1.62A
HAM16S-150110	1.10A	15.0V	1.32A
HAM16S-240070	0.70A	24.0V	0.84A
HAM16S-480035	0.35A	48.0V	0.42A

DUAL OUTPUT

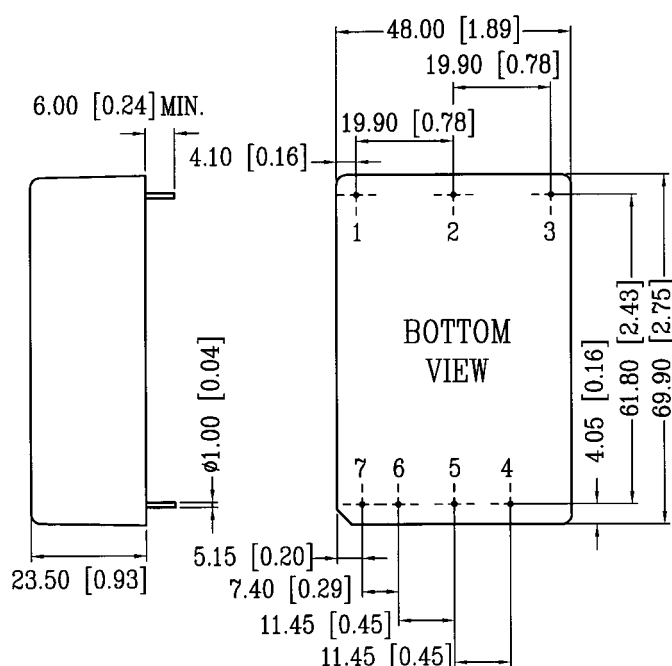
MODEL NO.	+VO1 ★ @			-VO2		
	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.
HAM16D-033180	1.80A	+3.3V	2.07A	1.80A	-3.3V	2.07A
HAM16D-050150	1.50A	+5.0V	1.72A	1.50A	-5.0V	1.72A
HAM16D-120068	0.68A	+12.0V	0.78A	0.68A	-12.0V	0.78A
HAM16D-150055	0.55A	+15.0V	0.63A	0.55A	-15.0V	0.63A

Symbols: "★" OVP built-in. "@" Adjustable. "||" Double Feedback.

Note: (1) Max. (maximum load) is the continuous operating load of each rail, but the max. load of each rail can not be drawn from all outputs at the same time.
(2) Peak output, less than 60 Sec. with duty cycle <10%.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 145.0g(5.11Oz)

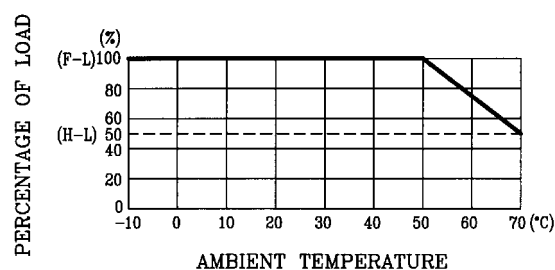


CASE SIZE: AM03

PIN ASSIGNMENT

PIN NO.	SINGLE	DUAL
PIN #1.	AC-GROUND	AC-GROUND
PIN #2.	AC-NEUTRAL	AC-NEUTRAL
PIN #3.	AC-LINE	AC-LINE
PIN #4.	+VO1	+VO1
PIN #5.	NO PIN	DC-COM
PIN #6.	DC COM	-VO2
PIN #7.	Remote ON/OFF	Remote ON/OFF

DERATING CHART





ON-BOARD UNIVERSAL INPUT AC-DC ENCAPSULATED MODULAR POWER SUPPLIES 16 WATTS TRIPLE OUTPUT HAM16-T SERIES



FEATURES:

- ON-BOARD AC/DC MODULAR POWER SUPPLIES
- UNIVERSAL INPUT RANGE
- COMPACT IN SIZE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB.22 / FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: 90-264Vac.
Input Frequency: 47-63 Hz. (50/60 Hz. Nom.).
Input Current: Typical 0.33A at 115Vac./0.16A at 230Vac.
Inrush Current: Typical 32.5A peak at 230Vac.
Input Fuse: Use external fuse. 1.0A/250Vac for the primary fuse is suggested.
Dielectric Withstand: Meet IEC950.
 3,000Vac-Output/Input.
 1,500Vac-Input/GND.
 500Vac-Output/GND.
EMI: Meet CISPR PUB.22 / FCC Class B.
Hold-up time: Typical 20mS at 115Vac, 100mS at 230Vac.
Earth Leakage Current: Less than 3.5mA at 230Vac.
Remote On/Off: TTL/CMOS-Compatible Output Control.
 Positive Logic version for Standard set up:
 ON(Enable)=Open(or 2.5-5.0Vdc above Com)
 OFF(Disable)=Short(or 0-0.8Vdc above Com)
 Negative Logic version option available by adding a "N" suffix to the end of Model #.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 15-16.5 Watts.
Output Indicator: LED.
Line Regulation: Various with output voltage typ. $\pm 0.5\%$.
Load Regulation: Various with output voltage.
 VO1 typ. $\pm 5.0\%$, VO2 typ. $\pm 4.0\%$, VO3 typ. $\pm 2.0\%$.
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in on main output.
Adjustability: From -10% of main output till OVP.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 125-150% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 70-76%. (Various with output voltage).
Switching Frequency: 83KHz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Typical peak deviation 250mV,
 Recovery time < 3mS for a 25% load change.
Case: Impact resistant thermo-plastic enclosure.
Power Density: 3.12 Watts. / Cubic inch.
Safety Standard: EN60950/ UL1950 Class I.
MTBF: 110,000 hours. Mil Std 217, 25°C.

Operating Temperature: -10 to +70°C range.
 -10°C to +50°C full load without derating.
 From +50°C, derating linearly to half load at +70°C.
 (Refer to Derating Chart.)
Storage Temperature: -20°C to +85°C.
Temperature Coefficient: $\pm 0.032\%$ /°C.
Humidity: Up to 95%RH, Non-condensing.
Cooling: Convection cooling for +50°C at full load.
 At least 100LFM moving air is recommended for full load >+50°C in a confined area.
Commercial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load Regulation measured from Full-Load (F-L) to Half-Load (H-L) at nominal input and others loaded at half load.

(3) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE/ CURRENT RATINGS CHART

TRIPLE OUTPUT

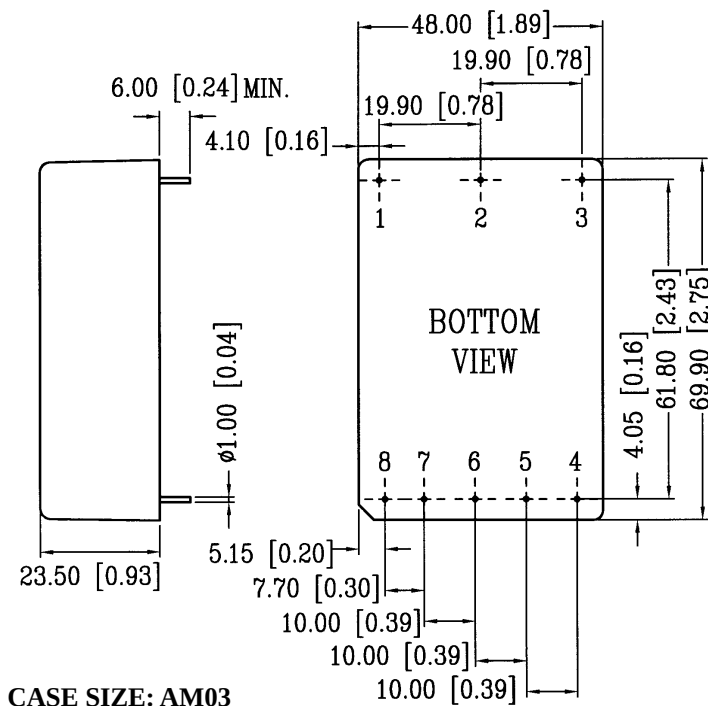
MODEL NO.	+VO1 @ ★			+VO2 †			-VO3 ‖		
	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.
HAM16T-5/09	1.8A	+5.0V	2.0A	0.40A	+9.0V	0.46A	0.40A	-9.0V	0.46A
HAM16T-5/12	1.8A	+5.0V	2.0A	0.30A	+12.0V	0.34A	0.30A	-12.0V	0.34A
HAM16T-5/15	1.8A	+5.0V	2.0A	0.24A	+15.0V	0.27A	0.24A	-15.0V	0.27A
HAM16T-5/24	1.8A	+5.0V	2.0A	0.16A	+24.0V	0.18A	0.16A	-24.0V	0.18A
HAM16T-3/05	1.8A	+3.3V	2.0A	0.75A	+5.0V	0.86A	0.75A	-5.0V	0.86A
HAM16T-3/12	1.8A	+3.3V	2.0A	0.30A	+12.0V	0.35A	0.30A	-12.0V	0.35A
HAM16T-3/15	1.8A	+3.3V	2.0A	0.25A	+15.0V	0.28A	0.25A	-15.0V	0.28A
HAM16T-3/5,12	1.8A	+3.3V	2.0A	0.75A	+5.0V	0.86A	0.30A	-12.0V	0.34A
HAM16T-3/24	1.8A	+3.3V	2.0A	0.16A	+24.0V	0.18A	0.16A	-24.0V	0.18A

Symbols: "★" OVP built-in. "@" Adjustable. "‖" Double Feedback. "†" Stacked on main O/P.

Note: (1) Max. (maximum load) is the continuous operating load of each rail, but the max. load of each rail can not be drawn from all outputs at the same time.
(2) Peak output, less than 60 Sec. with duty cycle <10%.

MECHANICAL DIMENSIONS: MM [INCHES]

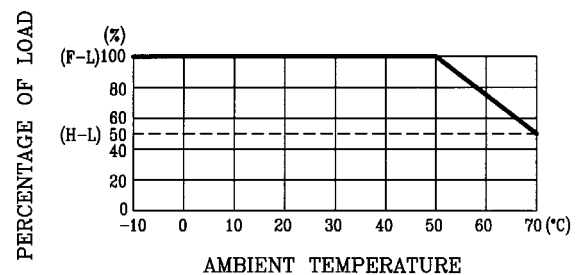
WEIGHT: 145.0g(5.11Oz)



PIN ASSIGNMENT

PIN NO.	TRIPLE OUTPUT
PIN #1.	AC-GROUND
PIN #2.	AC-NEUTRAL
PIN #3.	AC-LINE
PIN #4.	-VO3
PIN #5.	+VO1
PIN #6.	DC-COM
PIN #7.	+VO2
PIN #8.	Remote ON/ OFF

DERATING CHART





ON-BOARD UNIVERSAL INPUT AC-DC ENCAPSULATED MODULAR POWER SUPPLIES 50 WATTS SINGLE & MULTIPLE OUTPUT HAM50-S, HAM50-D & HAM50-T SERIES



FEATURES:

- ON-BOARD AC/DC MODULAR POWER SUPPLIES
- UNIVERSAL INPUT RANGE
- COMPACT IN SIZE
- MEET UNIVERSAL SAFETY STANDARD
- EMI MEET CISPR PUB.22/ FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: 90-264Vac.
Input Frequency: 47-63Hz, 50/60Hz.Nom.
Input Current: Typical 0.4-0.6A at 115Vac,
 Typical 0.22-0.3A at 230Vac.
Inrush Current: Typical 7.6-8.0A (rms) or
 40-45A(Peak-Peak) at 230Vac.
Input Fuse: Use internal fuse.
Dielectric Withstand: Meet IEC950.
 3,000Vac-Output/Input.
EMI: Meet CISPR PUB.22/ FCC Class B.
Hold-up time: Typical 37-54mS at 115Vac,
 Typical 180-260mS at 230Vac.
Earth Leakage Current: Less than 0.25mA at 230Vac.
Remote ON/OFF:
ON(Enable)=Open.
OFF(Disable)=Short.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 50 Watts.
Output Indicator: LED.
Line Regulation: Various with output voltage.
 HAM50S: Typical $\pm 0.1\%$.
 HAM50D/T: Typical $\pm 0.1\%$ -0.5%.
Load Regulation: Various with output voltage.
 VO1 typ. $\pm 1\%$.
 VO2 typ. $\pm 3\%$. (Stacked On).
 VO3 typ. $\pm 2\%$ typical. (P.R).
Noise & Ripple: Typical 1.0% peak to peak.
OVP: Built-in on main output.
Adjustability: Available at main output VO1.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 120-150% of rating output wattage.
 Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 72-85%. (Various with output voltage)
Switching Frequency: 65KHz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response Typical peak deviation 250mV,
 Recovery time < 3mS for a 25% load change.
Case: Impact resistant thermo-plastic enclosure.
Power Density: 5.0 Watts. / Cubic inch.
Safety Standard: EN60950/ UL1950 Class II.
MTBF: 110,000 hours. Mil Std 217, 25°C.

Operating Temperature: -10°C to +75°C range.
 -10°C to +50°C at full load without derating.
 From +50°C, derating linearly to half load at +75°C.
 (Refer to the Derating Chart).
Storage Temperature: -20°C to +85°C.
Temperature Coefficient: $\pm 0.02\%$ /°C.
Cooling: Convection cooling for +50°C at full load.
 At least 100LFM moving air is recommended
 for full load >+50°C in a confined area.
Commercial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load Regulation measured from Full-Load (F-L) to Half-Load (H-L) at nominal input and others loaded at half load.

(3) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE/ CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	VO1 @	
	TYP.	VOLT.
HAM50-S033075	7.5A	3.3V
HAM50-S050060	6.0A	5.0V
HAM50-S120042	4.2A	12.0V
HAM50-S150035	3.5A	15.0V
HAM50-S240021	2.1A	24.0V

DUAL OUTPUT

MODEL NO.	VO1 @		VO2●	
	TYP.	VOLT.	TYP	VOLT.
HAM50-D050E	3.0A	+5.0V	3.0A	-5.0V
HAM50-D050I	3.5A	+5.0V	2.0A	+12.0V
HAM50-D120I	2.0A	+12.0V	2.0A	-12.0V
HAM50-D150K	1.7A	+15.0V	1.7A	-15.0V
HAM50-D033E	3.5A	+3.3V	3.0A	-5.0V

TRIPLE OUTPUT

MODEL NO.	VO1 @		VO2 †		VO3 •	
	TYP.	VOLT.	TYP.	VOLT.	TYP.	VOLT.
HAM50-T033EE	4.0A	+3.3V	2.0A	+5V	0.5A	-5V
HAM50-T033II	4.0A	+3.3V	1.0A	+12V	0.5A	-12V
HAM50-T033KK	4.0A	+3.3V	0.8A	+15V	0.5A	-15V
HAM50-T050II	3.5A	+5.0V	1.0A	+12V	0.5A	-12V
HAM50-T050KK	3.5A	+5.0V	0.8A	+15V	0.5A	-15V
HAM50-T050IE	3.5A	+5.0V	1.0A	+12V	0.5A	-5V
HAM50-T050MI	3.5A	+5.0V	0.5A	+24V	0.5A	-12V

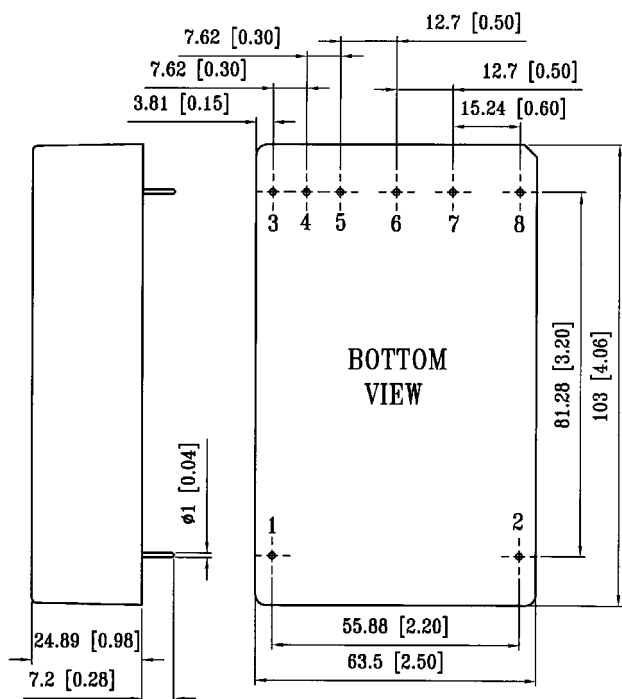
Symbols: " " OVP built-in. "@@" Adjustable. "●" Installed with Post Regulator (P.R.)

"†" Stacked on main O/P.

Note: (1) Max. (maximum load) is the continuous operating load of each rail, but the max. load of each rail can not be drawn from all outputs at the same time.
(2) Peak output, less than 60 Sec. with duty cycle <10%.

MECHANICAL DIMENSIONS: MM [INCHES]

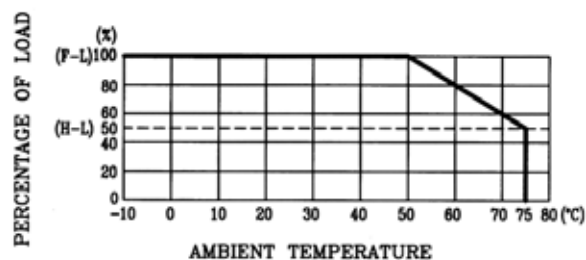
WEIGHT: 378.0g(13.30z)



PIN ASSIGNMENT

PIN NO.	SINGLE O/P	DUAL O/P	DUAL O/P (+5V/+12V)	TRIPLE O/P
1	AC-L	AC-L	AC-L	AC-L
2	AC-N	AC-N	AC-N	AC-N
3	Remote On/Off	-VO2	DC COM	-VO3
4	No Pin	Remote On/Off	Remote On/Off	Remote On/Off
5	No Pin	No Pin	No Pin	DC COM
6	DC COM	DC COM	+5V	DC COM
7	No Pin	No Pin	No Pin	+VO1
8	+VO1	+VO1	+12V	+VO2

DERATING CHART





■ CE MARKING COMPLIANCE

Commercial Grade only.



OUTPUT VOLTAGE/ CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	VO1 TYP.	@ VOLT.
HAS10G-S033250	2.50A	+3.3V
HAS10G-S050200	2.00A	+5.0V
HAS10G-S090111	1.11A	+9.0V
HAS10G-S120085	0.85A	+12.0V
HAS10G-S150067	0.67A	+15.0V
HAS10G-S240041	0.41A	+24.0V

DUAL OUTPUT

MODEL NO.	VO1 TYP.	@ VOLT.	VO2● TYP.	VOLT.
HAS10-D050E	1.00A	+5V	1.00A	-5V
HAS10-D050I	1.00A	+5V	0.42A	+12V
HAS10-D120I	0.42A	+12V	0.42A	-12V
HAS10-D150K	0.34A	+15V	0.34A	-15V
HAS10-D033E	1.51A	+3.3V	1.00A	-5V

TRIPLE OUTPUT

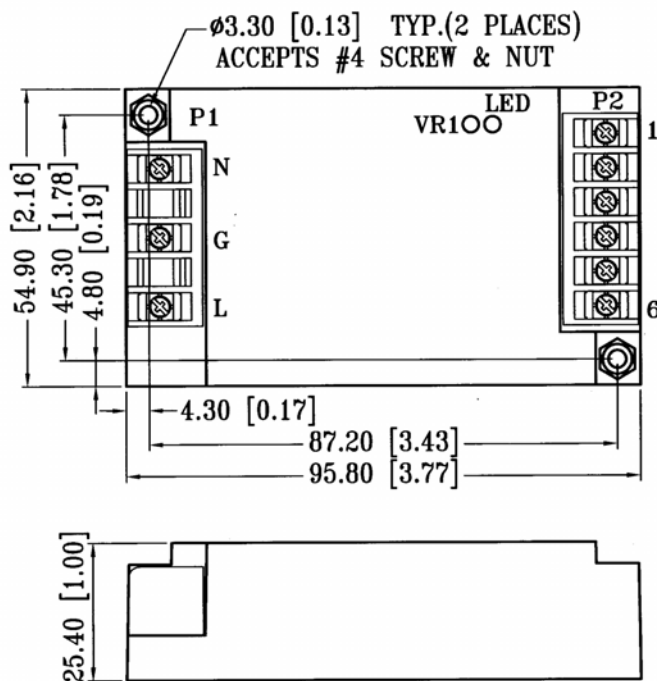
MODEL NO.	VO1 @ TYP.	VOLT.	VO2 ● TYP.	VOLT.	VO3 ● TYP.	VOLT.
HAS10-T033II	1.51A	+3.3V	0.10A	+12V	0.10A	-12V
HAS10-T050II	1.50A	+5.0V	0.10A	+12V	0.10A	-12V
HAS10-T050KK	1.40A	+5.0V	0.10A	+15V	0.10A	-15V

Symbols: " " OVP built-in. "@" Adjustable. "●" Installed with Post Regulator (P.R.).

Note: (1) Max. (maximum load) is the continuous operating load of each rail,
but the max. load of each rail can not be drawn from all outputs at the same time.

MECHANICAL DIMENSIONS: MM [INCHES]

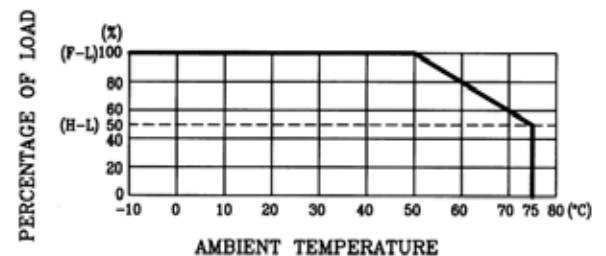
WEIGHT: 177.5g (6.26 Oz.)



PIN ASSIGNMENT

PIN NO.	SINGLE O/P	DUAL O/P(-VO2)	DUAL O/P(+VO2)	TRIPLE O/P
P1-1	L	L	L	L
P1-3	N	N	N	N
P1-2	G	G	G	G
P2-1	REMOTE ON/OFF	REMOTE ON/OFF	REMOTE ON/OFF	REMOTE ON/OFF
P2-2	DC COM	VO2	DC COM	+VO1RET
P2-3	DC COM	DC COM	DC COM	+VO1
P2-4	VO1	DC COM	VO1	+VO3
P2-5	VO1	VO1	VO2	DC COM
P2-6	NC	NC	NC	VO2

DERATING CHART





CHASSIS-MOUNT UNIVERSAL INPUT MEDICAL APPLICATION AC-DC GREEN POWER ENCAPSULATED MODULAR POWER SUPPLIES 10 WATTS MULTIPLE OUTPUT HASM10G SERIES



FEATURES:

- CHASSIS-MOUNT AC/DC MODULAR POWER SUPPLIES
- UNIVERSAL AC INPUT RANGE
- NO LOAD POWER CONSUMPTION <0.51 W
- MEET MEDICAL STANDARD EN60601-1/UL60601-1
- EMI MEETS CISPR PUB.22/FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Input Frequency: 47-63 Hz. (Nominal 50/60Hz.).
Input Current: Typical 0.16A at 115Vac/0.1A at 230Vac.
Inrush Current: Typical 4.2Arms at 230Vac.
Input Fuse: Use external fuse.
Dielectric Withstand: Meet IEC60601-1.
 4,000Vac-Output/Input.
 2,000Vac-Input/GND.
 1,000Vac-Output/GND.
EMI: Meet CISPR PUB. 22/FCC Class B.
Hold-up time: Typ. 22.4 mS at 115Vac, 130mS at 230Vac.
Green Power: Less than 0.51Watt at 230Vac for single O/P.
Earth Leakage Current: Less than 0.16mA at 230Vac.
Remote ON/OFF:
 ON(Enable)=Open.
 OFF(Disable)=Short.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 10 Watts.
Line Regulation: Various with output voltage. Typ.±0.1%.
Load Regulation: Various with output voltage.
 Main VO1 typ. ± 0.1-2.0%.
 Aux.VO2 typ. ± 0.7-1.2%.
 Aux.VO3 typ. ± 0.1%.
Total Regulation: Typical 0.1-1.9%.
Noise & Ripple: Typical 1.0% peak to peak.
 Typ. 100mV for 3.3V/5V.
OVP: Built-in on main output VO1.
Adjustability: Available at main output VO1.
Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 Typical 125-150% of rating output load.
 Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 70-80%. (various with output voltage)
Switching Frequency: 80K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Peak deviation on 70mV,
 Recovery time <0.2mSec. at 25%step load change.
Case: Impact resistant thermo-plastic enclosure.
Safety Standard: EN60601-1/ UL60601-1 Class I.
Power Density: 1.22 Watts. / Cubic inch.
Operating Temperature: 0°C to +50°C range at full load without derating.
 From +50°C derating linearly to half load at +70°C (Refer to the Derating Chart).
Storage Temperature: -20°C to +85°C.
Temperature Coefficient: ±0.03% /°C.
Cooling: Convection cooling for +50°C at full load.
Medical Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.
 (2) Load Regulation measured from Full-Load (F-L) to Half-Load (H-L) at nominal input and others loaded at half load.
 (3) Due to requests in market and advances in technology, specifications subject to change without notice.



In application.

OUTPUT VOLTAGE/ CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	VO1 TYP.	@ VOLT.
HASM10G-S033250	2.50A	+3.3V
HASM10G-S050200	2.00A	+5.0V
HASM10G-S090111	1.11A	+9.0V
HASM10G-S120085	0.85A	+12.0V
HASM10G-S150067	0.67A	+15.0V
HASM10G-S240041	0.41A	+24.0V

DUAL OUTPUT

MODEL NO.	VO1 TYP.	@ VOLT.	VO2● TYP.	VOLT.
HASM10-D050E	1.00A	+5V	1.00A	-5V
HASM10-D050I	1.00A	+5V	0.42A	+12V
HASM10-D120I	0.42A	+12V	0.42A	-12V
HASM10-D150K	0.34A	+15V	0.34A	-15V
HASM10-D033E	1.51A	+3.3V	1.00A	-5V

TRIPLE OUTPUT

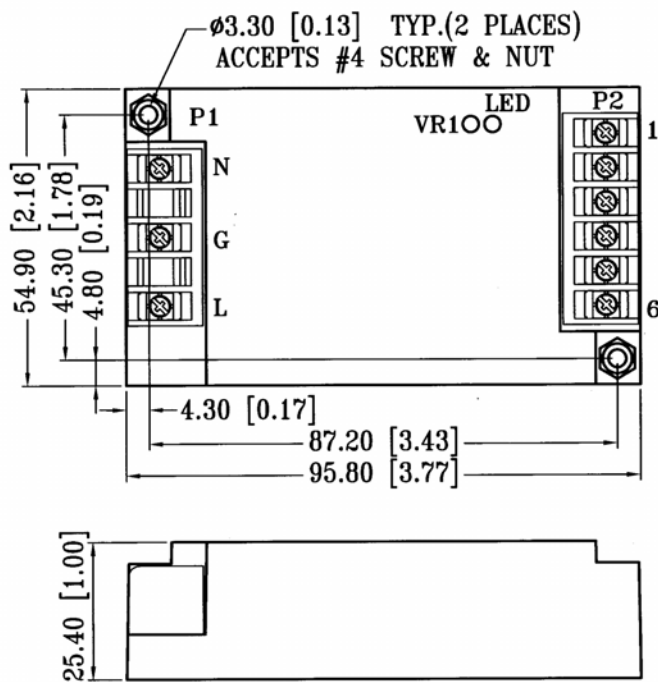
MODEL NO.	VO1 @ TYP.	VOLT.	VO2 ● TYP.	VOLT.	VO3 ● TYP.	VOLT.
HASM10-T033II	1.51A	+3.3V	0.10A	+12V	0.10A	-12V
HASM10-T050II	1.50A	+5.0V	0.10A	+12V	0.10A	-12V
HASM10-T050KK	1.40A	+5.0V	0.10A	+15V	0.10A	-15V

Symbols: " " OVP built-in. "@" Adjustable. "●" Installed with Post Regulator (P.R.).

Note: (1) Max. (maximum load) is the continuous operating load of each rail, but the max. load of each rail can not be drawn from all outputs at the same time.

MECHANICAL DIMENSIONS: MM [INCHES]

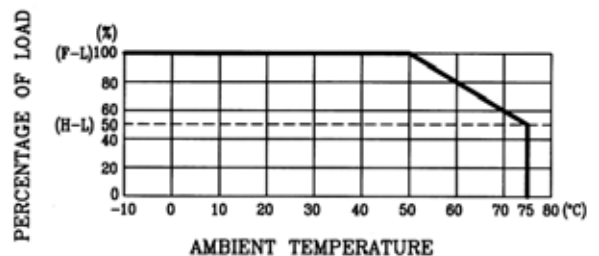
WEIGHT: 177.5g (6.26Oz.)



PIN ASSIGNMENT

PIN NO.	SINGLE O/P	DUAL O/P(-VO2)	DUAL O/P(+VO2)	TRIPLE O/P
P1-1	L	L	L	L
P1-3	N	N	N	N
P1-2	G	G	G	G
P2-1	REMOTE ON/OFF	REMOTE ON/OFF	REMOTE ON/OFF	REMOTE ON/OFF
P2-2	DC COM	VO2	DC COM	+VO1RET
P2-3	DC COM	DC COM	DC COM	+VO1
P2-4	VO1	DC COM	VO1	+VO3
P2-5	VO1	VO1	VO2	DC COM
P2-6	NC	NC	NC	VO2

DERATING CHART





- CHASSIS-MOUNT AC/DC MODULAR POWER SUPPLIES
- UNIVERSAL AC INPUT RANGE
- COMPACT IN SIZE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB.22 / FCC CLASS B
- CE MARKING COMPLIANCE

Input Voltage: Typical 90-264Vac. Nominal: 115/230Vac.
Input Frequency: 47-63 Hz. (Nominal 50/60 Hz.)
Input Current: 0.77A at 115Vac./0.39A at 230Vac.
Inrush Current: 34A(peak) or typ. 4.8(rms) at 230Vac.
Input Fuse: Use internal fuse.
Dielectric Withstand: Meet IEC950.
 3,000Vac-Output/Input.
 1,500Vac-Input/GND.
 500Vac-Output/GND.
EMI: Meet CISPR PUB.22 / FCC Class B.
Hold-up time: Typ. 19 mS at 115Vac, 80mS at 230Vac.
Earth Leakage Current: Less than 0.52mA at s230Vac.
Remote On/Off:
 ON(Enable)=Open.
 OFF(Disable)=Short.

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart

Output Wattage: Typical 50 Watts.

Line Regulation: Various with output voltage.
Typical 0.1-0.5%.

Load Regulation: Various with output voltage.
Typical ± 1.0 -2.0%.

Noise & Ripple: Typical 1.0% peak to peak.

OVP: Built-in on main output.

Adjustability: Available at main output.

Overload Protection (OLP):
Fully protected against output overload and short circuit.
Typical 120-150% max. load.
Consult the factory for special OLP setting.

Efficiency: Typical 72%-85%. (various with output voltage)
Switching Frequency: 63K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Peak deviation 200mV,
 Recovery time <3mSec. at 25% step load change.
Case: Impact resistant thermo-plastic enclosure.
Safety Standard: EN60950/ UL1950 Class I or Class II.
Power Density: 4.1 Watts. / Cubic inch.
MTBF: 110,000Hrs. Mil Std 217, 25°C.

Operating Temperature: -10°C to +75°C range.
 -10°C to +50°C at full load without derating.
 From +50°C derating linearly to half load at +75°C
 (Refer to the Derating Chart).

Storage Temperature: -20°C to +85°C.

Temperature Coefficient: $\pm 0.03\% / ^\circ\text{C}$.

Cooling: Convection cooling for $< +50^\circ\text{C}$ at full load.
 At least 100LFM moving air is recommended
 for full load $> +50^\circ\text{C}$ in a confined area.

Commercial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.
(2) Load Regulation measured from Full-Load (F-L) to Half-Load (H-L) at nominal input and others loaded at half load.
(3) Due to requests in market and advances in technology, specifications subject to change without notice.



For the details of safety approval, please consult the factory.

OUTPUT VOLTAGE/ CURRENT RATINGS CHART

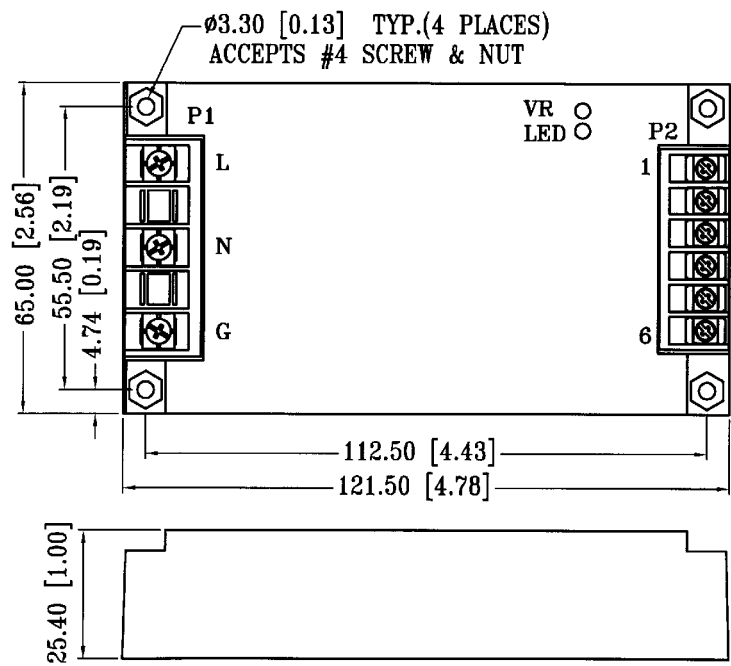
SINGLE OUTPUT

MODEL NO.	MAIN O/P VO1 @	
	TYP.	VOLT.
HAS50-S033075	7.5A	+3.3V
HAS50-S050060	6.0A	+5.0V
HAS50-S120042	4.2A	+12.0V
HAS50-S150035	3.5A	+15.0V
HAS50-S240021	2.1A	+24.0V

Symbols: " " OVP built-in. "@" Adjustable.

MECHANICAL DIMENSIONS: MM [INCHES]

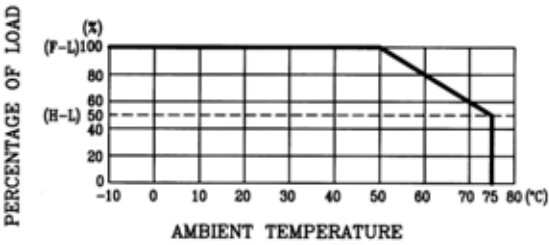
WEIGHT: 378.0g (13.3 Oz.)



PIN ASSIGNMENT

PIN NO.	SINGLE O/P
P1-L	AC-L
P1-N	AC-N
P1-G	AC-G
P2-1	REMOTE ON/OFF
P2-2	NC
P2-3	+VO1
P2-4	+VO1
P2-5	DC COM
P2-6	DC COM

DERATING CHART





CHASSIS-MOUNT UNIVERSAL INPUT AC-DC ENCAPSULATED MODULAR POWER SUPPLIES 50 WATTS DUAL & TRIPLE OUTPUT HAS50-D & HAS50-T SERIES



FEATURES:

- CHASSIS-MOUNT AC/DC MODULAR
POWER SUPPLIES
- UNIVERSAL AC INPUT RANGE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEETS CISPR PUB.22/FCC CLASS B
- CE MARKING COMPLIANCE

SPECIFICATION

INPUT SPECIFICATION

Input Voltage: Typical 90-264Vac.
Nominal: 115/230Vac.
Input Frequency: 47-63 Hz. (Nominal 50/60Hz.).
Input Current: 0.76A at 115Vac./0.39A at 230Vac.
Inrush Current: 4.8A(rms) or 34A(peak) at 230Vac.
Input Fuse: Use internal fuse.
Dielectric Withstand: Meet IEC60950.
3,000Vac-Output/Input.
1,500Vac-Input/GND.
500Vac-Output/GND.
EMI: Meet CISPR PUB. 22/FCC Class B.
Hold-up time: Typical 18 mS at 115Vac, 82mS at 230Vac.
Earth Leakage: Less than 0.46mA at 230Vac.
Remote ON/OFF:
ON(Enable)=Open.
OFF(Disable)=Short.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical 50 Watts.
Line Regulation: Various with output voltage.
 $\pm 0.1-0.5\%$ typical.
Load Regulation: Various with output voltage.
Main VO1 $\pm 1-2\%$ typical.
Aux.VO2 $\pm 3-5\%$ typical. (stacked on)
Aux.VO3 $\pm 2-3\%$ typical. (P.R.)
Noise & Ripple: 1.0% typical peak to peak.
OVP: Built-in on main output VO1.
Adjustability: Available at main output VO1.
Overload Protection (OLP):
Fully protected against output overload and short circuit.
Typical 125-150% of rating output load.
Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 78-83%. (various with output voltage)
Switching Frequency: 68K Hz.
Circuit Topology: Fixed Frequency Flyback circuit.
Transient Response: Peak deviation on 200-220mV,
Recovery time <3mSec. at 25%step load change.
Case: Impact resistant thermo-plastic enclosure.
Safety Standard: EN60950/ UL1950 Class I or Class II.
Power Density: 3.6 Watts. / Cubic inch.
MTBF: 110,000Hrs. Mil Std 217, 25°C.

Operating Temperature: -10°C to +75°C range.
-10°C to +50°C at full load without derating.
From +50°C derating linearly to half load at +75°C
(Refer to the Derating Chart).
Storage Temperature: -20°C to +85°C.
Temperature Coefficient: $\pm 0.03\%$ /°C.
Cooling: Convection cooling for +50°C at full load.
At least 100LFM moving air is recommended
for full load >+50°C in a confined area.
Commercial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.
(2) Load Regulation measured from Full-Load (F-L) to Half-Load (H-L) at nominal input and others loaded at half load.
(3) Due to requests in market and advances in technology, specifications subject to change without notice.



In application.

OUTPUT VOLTAGE/ CURRENT RATINGS CHART

DUAL OUTPUT

MODEL NO.	VO1 TYP.	@ VOLT.	VO2● TYP.	VOLT.
HAS50-D050E	3.0A	+5V	3.0A	-5V
HAS50-D050I	3.5A	+5V	2.0A	+12V
HAS50-D120I	2.0A	+12V	2.0A	-12V
HAS50-D150K	1.7A	+15V	1.7A	-15V
HAS50-D033E	3.5A	+3.3V	3.0A	-5V

TRIPLE OUTPUT

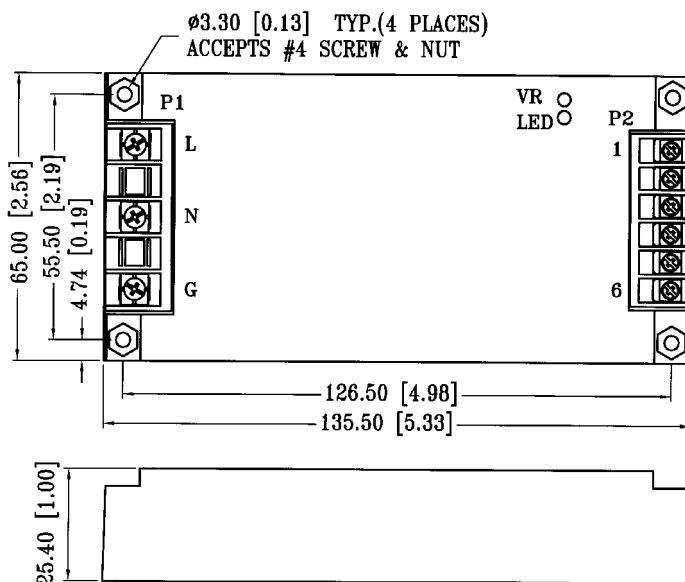
MODEL NO.	VO1 @ TYP.	VOLT.	VO2 † TYP.	VOLT.	VO3 ● TYP.	VOLT.
HAS50-T033EE	4.0A	+3.3V	2.0A	+5V	0.5A	-5V
HAS50-T033II	4.0A	+3.3V	1.0A	+12V	0.5A	-12V
HAS50-T033KK	4.0A	+3.3V	0.8A	+15V	0.5A	-15V
HAS50-T050II	3.5A	+5.0V	1.0A	+12V	0.5A	-12V
HAS50-T050KK	3.5A	+5.0V	0.8A	+15V	0.5A	-15V
HAS50-T050IE	3.5A	+5.0V	1.0A	+12V	0.5A	-5V
HAS50-T050MI	3.5A	+5.0V	0.5A	+24V	0.5A	-12V

Symbols: " " OVP built-in. "@" Adjustable. "†" Stacked on main O/P. "●" Installed with Post Regulator (P.R.).

Note: (1) Max. (maximum load) is the continuous operating load of each rail, but the max. load of each rail can not be drawn from all outputs at the same time.
(2) Peak output, less than 60 Sec. with duty cycle <10%.

MECHANICAL DIMENSIONS: MM [INCHES]

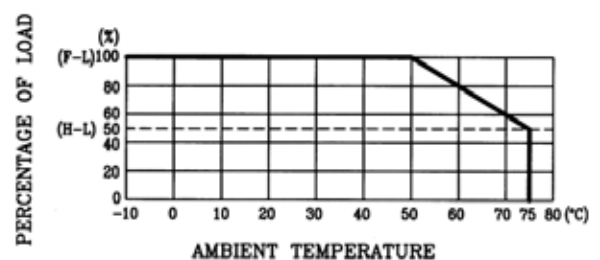
WEIGHT: 378.0g (13.3 Oz.)



PIN ASSIGNMENT

PIN NO.	DUAL O/P(+VO2)	DUAL O/P(-VO2)	TRIPLE O/P
P1-L	L	L	L
P1-N	N	N	N
P1-G	G	G	G
P2-1	REMOTE ON/OFF	REMOTE ON/OFF	REMOTE ON/OFF
P2-2	NC	-VO2	-VO3
P2-3	+VO2	NC	+VO2
P2-4	VO1	VO1	+VO1
P2-5	DC COM	DC COM	DC COM
P2-6	DC COM	DC COM	DC COM

DERATING CHART





PCB-MOUNT DC-DC CONVERTER ENCAPSULATED MODULES 8 WATTS SINGLE & DUAL OUTPUT HDM08-S & HDM08-D SERIES



FEATURES:

- LOW COST SINGLE & DUAL OUTPUT
- WIDE 4:1 & 2:1 INPUT RANGE
- 8W ISOLATED OUTPUT
- SIX-SIDED METAL SHIELD

SPECIFICATION

INPUT SPECIFICATION

Input Range: Wide 4:1 & 2:1 DC input range.
See Ratings Chart.

Input Voltage: Nominal 12/24/48 Vdc.

Input Current: Various with input range and load.
See Ratings Chart.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Undervoltage Shutdown: 8Vdc.

Isolation Resistance: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 2.0\%$ typical.

Line Regulation: Various with output voltages.
 $\pm 0.5\%$ typical.

Load Regulation: Various with output voltages.
Single O/P $\pm 1.0\%$ typical.
Dual O/P $\pm 2.0\%$ typical.

Noise & Ripple: Typical 100mV for 3.3V/5.0V & 1.0% for others peak to peak.

OVP: Built-in on main output.

Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 84% (various with input).

Switching Frequency: Fixed frequency 100K Hz.

Circuit Topology: 100K Hz. Forward Circuit.

Transient Response: Peak deviation 200mV.
Recovery time $< 3\text{mS}$ for a 25% load change.

Case: Black coated steel with non-conductive metal base.

Power Density: 10Watts. / Cubic inch.

Commercial Grade only.

MTBF: 1,000,000 hours. Mil Std 217, 25°C.

Operating Temperature: -10 to +70°C range.
0°C to +60°C full load without derating.
From +60°C, derating linearly to half load at +70°C.
(Refer to Derating Chart.)

Temperature: -20°C to +85°C.

Temperature Coefficient: $\pm 0.03\% / ^\circ\text{C}$.

Cooling: Convection cooling up to +60°C at full load.
At least 100LFM moving air is recommended for
F-L $> +60^\circ\text{C}$ in a confined area.

Humidity: Up to 95%RH, Non-condensing.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Line Regulation measured from High to Low Lines at full load.

(3) Load Regulation measured from Full Load to 1/2 Full Load at nominal input.

(4) Correct fuse size by calculating the max. DC current drains at low Line input & Load and then adding 20-25% for the desired fuse size.

(5) Due to requests in market and advances in technology, specifications subject to change without notice.

INPUT/OUTPUT & VOLTAGE/ CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT VO1(Vdc)	OUTPUT VO1(A)	CASE SIZE
		N. L. (mA)	F.L.			
HDM08-24B-S03	18.0- 36.0	46	290	3.3V	1.50A	DM2C
HDM08-24B-S05	18.0- 36.0	46	393	5.0V	1.50A	DM2C
HDM08-24B-S09	18.0- 36.0	46	420	9.0V	0.90A	DM2C
HDM08-24B-S12	18.0- 36.0	46	415	12.0V	0.67A	DM2C
HDM08-24B-S15	18.0- 36.0	46	425	15.0V	0.55A	DM2C
HDM08-24B-S24	18.0- 36.0	46	430	24.0V	0.35A	DM2C
HDM08-24D-S03	9.0- 36.0	50	290	3.3V	1.50A	DM2C
HDM08-24D-S05	9.0- 36.0	50	393	5.0V	1.50A	DM2C
HDM08-24D-S09	9.0- 36.0	50	420	9.0V	0.90A	DM2C
HDM08-24D-S12	9.0- 36.0	50	415	12.0V	0.67A	DM2C
HDM08-24D-S15	9.0- 36.0	50	425	15.0V	0.55A	DM2C
HDM08-24D-S24	9.0- 36.0	50	430	24.0V	0.35A	DM2C
HDM08-48D-S03	20.0- 72.0	46	145	3.3V	1.50A	DM2C
HDM08-48D-S05	20.0- 72.0	46	196	5.0V	1.50A	DM2C
HDM08-48D-S09	20.0- 72.0	46	210	9.0V	0.90A	DM2C
HDM08-48D-S12	20.0- 72.0	46	207	12.0V	0.67A	DM2C
HDM08-48D-S15	20.0- 72.0	46	212	15.0V	0.55A	DM2C
HDM08-48D-S24	20.0- 72.0	46	215	24.0V	0.35A	DM2C

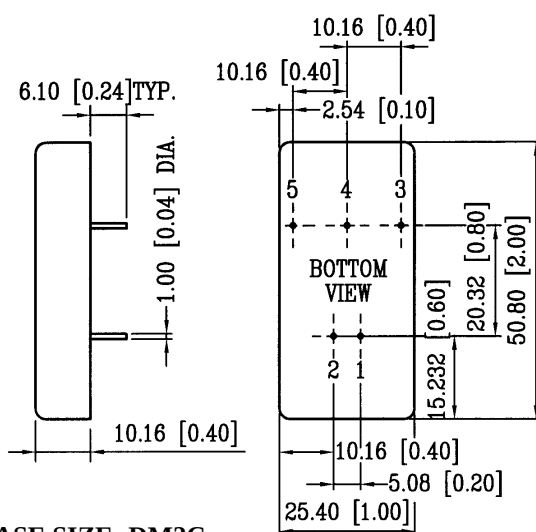
DUAL OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT (Vdc)		OUTPUT (A)		CASE SIZE
		N. L. (mA)	F.L.	+VO1	-VO2	+VO1	-VO2	
HDM08-24B-D03	18.0- 36.0	46	300	+3.3V	-3.3V	0.80A	0.80A	DM2C
HDM08-24B-D05	18.0- 36.0	46	420	+ 5.0V	-5.0V	0.80A	0.80A	DM2C
HDM08-24B-D12	18.0- 36.0	46	420	+12.0V	-12.0V	0.34A	0.34A	DM2C
HDM08-24B-D15	18.0- 36.0	46	420	+15.0V	-15.0V	0.27A	0.27A	DM2C
HDM08-24D-D03	9.0- 36.0	50	300	+3.3V	-3.3V	0.80A	0.80A	DM2C
HDM08-24D-D05	9.0- 36.0	50	420	+ 5.0V	-5.0V	0.80A	0.80A	DM2C
HDM08-24D-D12	9.0- 36.0	50	420	+12.0V	-12.0V	0.34A	0.34A	DM2C
HDM08-24D-D15	9.0- 36.0	50	420	+15.0V	-15.0V	0.27A	0.27A	DM2C
HDM08-48D-D03	20.0- 72.0	46	150	+3.3V	-3.3V	0.80A	0.80A	DM2C
HDM08-48D-D05	20.0- 72.0	46	210	+ 5.0V	-5.0V	0.80A	0.80A	DM2C
HDM08-48D-D12	20.0- 72.0	46	210	+12.0V	-12.0V	0.34A	0.34A	DM2C
HDM08-48D-D15	20.0- 72.0	46	210	+15.0V	-15.0V	0.27A	0.27A	DM2C

Symbols: " " OVP built-in. " || " Double Feedback.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 27.5g (0.95 Oz.)

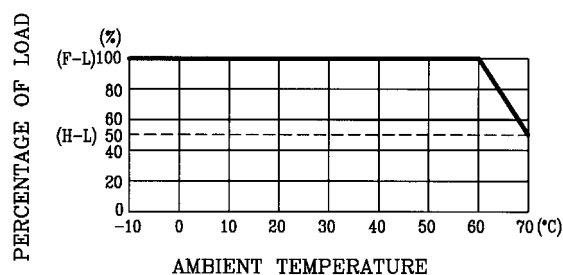


CASE SIZE: DM2C

PIN ASSIGNMENT

PIN NO.	SINGLE	DUAL
PIN# 1.	-INPUT	-INPUT
PIN# 2.	+INPUT	+INPUT
PIN# 3.	DC-COM	-VO2
PIN# 4.	NO PIN	DC-COM
PIN# 5.	+VO1	+VO1

DERATING CHART





PCB-MOUNT DC-DC CONVERTER ENCAPSULATED MODULES 9 WATTS SINGLE & DUAL OUTPUT HDM09-S & HDM09-D SERIES



FEATURES:

- LOW COST SINGLE & DUAL OUTPUT
- 2:1 INPUT RANGE
- 9W ISOLATED OUTPUT
- SIX-SIDED METAL SHIELD

SPECIFICATION

INPUT SPECIFICATION

Input Range: 2:1 DC input range.
See Ratings Chart.

Input Voltage: Nominal 12/24/48 Vdc.

Input Current: Various with input range & load.
See Ratings Chart.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Isolation Resistance: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 2.0\%$ typical.

Line Regulation: Various with output voltages. $\pm 0.5\%$ typ.

Load Regulation: Various with output voltages.
Single O/P $\pm 1.0\%$ typical.
Dual O/P $\pm 2.0\%$ typical.

Noise & Ripple: Typical 100mV for 3.3V/5.0V & 1.0% for others peak to peak.

OVP: Built-in on main output.

Adjustability: Not available.

Overload Protection (OLP):
Fully protected against output overload and short circuit.
Typical 120-150% max. load.
Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 65-75% (various with input/output).

Switching Frequency: 40-70K Hz., various with input and loading condition.

Circuit Topology: Free Running Flyback Circuit.

Transient Response: Peak deviation 200mV.
Recovery time < 3mS for a 25% load change.

Case: Black coated steel with non-conductive metal base.

Power Density: 5.6Watts. / Cubic inch.

MTBF: 1,000,000 hours. Mil Std 217, 25°C.

Operating Temperature: -10°C to +70°C range.
0°C to +60°C at full load without derating.
From +60°C, derating lineally to half load at +70°C.
(Refer to the Derating Chart).

Temperature: -20°C to +85°C.

Temperature Coefficient: $\pm 0.03\%$ /°C.

Cooling: Convection cooling up to +60°C at full load.
At least 100LFM moving air is recommended for Full load > +60°C in a confined area.

Humidity: Up to 95%RH, Non-condensing.

Commercial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Line Regulation measured from High to Low Lines at full load.

(3) Load Regulation measured from Full Load to 1/2 Full Load at nominal input.

(4) Correct fuse size by calculating the max. DC current drains at low Line input & Load and then adding 20-25% for the desired fuse size.

(5) Due to requests in market and advances in technology, specifications subject to change without notice.

INPUT/ OUTPUT & VOLTAGE/ CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT VO1(Vdc)	OUTPUT VO1(A)	CASE SIZE
		N. L.	F.L. (mA)			
HDM09-12B-S03	9.0- 18.0	60	650	3.3V	1.65A	DM2B
HDM09-12B-S05	9.0- 18.0	60	930	5.0V	1.65A	DM2B
HDM09-12B-S09	9.0- 18.0	60	950	9.0V	0.95A	DM2B
HDM09-12B-S12	9.0- 18.0	60	940	12.0V	0.70A	DM2B
HDM09-12B-S15	9.0- 18.0	60	990	15.0V	0.60A	DM2B
HDM09-12B-S24	9.0- 18.0	60	1060	24.0V	0.40A	DM2B
HDM09-24B-S03	18.0- 36.0	35	325	3.3V	1.65A	DM2B
HDM09-24B-S05	18.0- 36.0	35	465	5.0V	1.65A	DM2B
HDM09-24B-S09	18.0- 36.0	35	475	9.0V	0.95A	DM2B
HDM09-24B-S12	18.0- 36.0	35	470	12.0V	0.70A	DM2B
HDM09-24B-S15	18.0- 36.0	35	495	15.0V	0.60A	DM2B
HDM09-24B-S24	18.0- 36.0	35	530	24.0V	0.40A	DM2B
HDM09-48B-S03	36.0- 72.0	20	163	3.3V	1.65A	DM2B
HDM09-48B-S05	36.0- 72.0	20	233	5.0V	1.65A	DM2B
HDM09-48B-S09	36.0- 72.0	20	238	9.0V	0.95A	DM2B
HDM09-48B-S12	36.0- 72.0	20	235	12.0V	0.70A	DM2B
HDM09-48B-S15	36.0- 72.0	20	247	15.0V	0.60A	DM2B
HDM09-48B-S24	36.0- 72.0	20	265	24.0V	0.40A	DM2B

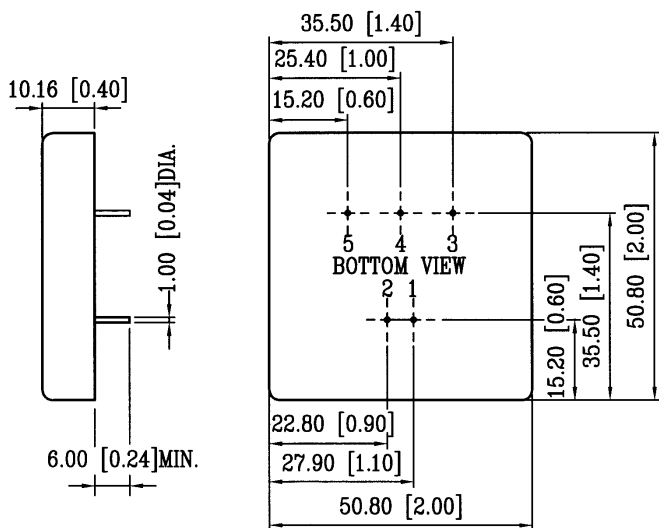
DUAL OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT (Vdc)		OUTPUT (A)		CASE SIZE
		N. L.	F.L. (mA)	+VO1	-VO2	+VO1	-VO2	
HDM09-12B-D05	9.0- 18.0	50	960	+5.0V	-5.0V	0.85A	0.85A	DM2B
HDM09-12B-D12	9.0- 18.0	50	970	+12.0V	-12.0V	0.36A	0.36A	DM2B
HDM09-12B-D15	9.0- 18.0	50	990	+15.0V	-15.0V	0.30A	0.30A	DM2B
HDM09-24B-D05	18.0- 36.0	30	480	+5.0V	-5.0V	0.85A	0.85A	DM2B
HDM09-24B-D12	18.0- 36.0	30	485	+12.0V	-12.0V	0.36A	0.36A	DM2B
HDM09-24B-D15	18.0- 36.0	30	495	+15.0V	-15.0V	0.30A	0.30A	DM2B
HDM09-48B-D05	36.0- 72.0	20	240	+5.0V	-5.0V	0.85A	0.85A	DM2B
HDM09-48B-D12	36.0- 72.0	20	243	+12.0V	-12.0V	0.36A	0.36A	DM2B
HDM09-48B-D15	36.0- 72.0	20	248	+15.0V	-15.0V	0.30A	0.30A	DM2B

Symbols: " " OVP built-in. "||" Double Feedback.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 62.5g (2.2 Oz.)

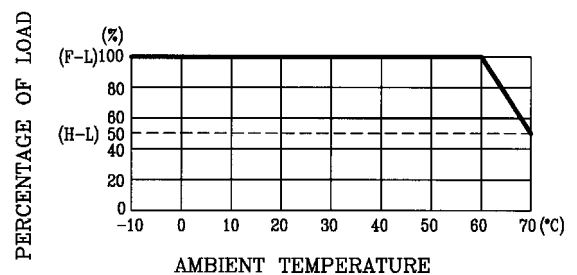


CASE SIZE: DM2B

PIN ASSIGNMENT

PIN NO.	SINGLE	DUAL
PIN #1	-INPUT	-INPUT
PIN #2	+ INPUT	+ INPUT
PIN #3	DC-COM	-VO2
PIN #4	PO PIN	DC-COM
PIN #5	VO1	+ VO1

DERATING CHART





PCB-MOUNT DC-DC CONVERTER ENCAPSULATED MODULES INDUSTRIAL GRADE 10 WATTS SINGLE & DUAL OUTPUT HDM11-S & HDM11-D SERIES



FEATURES:

- VERY LOW PROFILE 7 MM HIGH
- SINGLE & DUAL OUTPUT
- WIDE 4:1 INPUT RANGE
- 10W ISOLATED OUTPUT
- SIX-SIDED METAL SHIELD

SPECIFICATION

INPUT SPECIFICATION

Input Range: Wide 4:1 DC input range.
See Ratings Chart.

Input Voltage: Nominal 12/24/48Vdc.

Input Current: Various with input range and load.
See Ratings Chart.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Undervoltage Shutdown: 8Vdc.

Isolation Resistor: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

Remote On/Off: TTL/CMOS-Compatible Input Control.

Positive Logic version for Standard set up:

ON(Enable)=Open(or 2.5-5.0Vdc above-Vin)

OFF(Disable)=Short(or 0-0.8Vdc above-Vin)

Negative Logic version option available by adding a
“N” suffix to the end of Model #.

Remark: Logic voltage refer to -Input(Vin).

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 2.0\%$ typical.

Line Regulation: Various with output voltages $\pm 0.5\%$ typ.

Load Regulation: Various with output voltages.

Single O/P ± 1.0 typical.

Dual O/P ± 2.0 typical.

Noise & Ripple: Typical 100mV for 3.3V/5.0V & 1.0%
for others peak to peak.

OVP: Built-in on main output.

Adjustability: Not available.

Overload Protection (OLP):

Fully protected against output overload and short circuit.

OLP set t about 120-150% of rating output load.

Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 78% (various with input/output)

Switching Frequency: Fixed frequency 450K Hz.

Circuit Topology: 450K Hz. Forward Circuit.

Transient Response: Peak deviation 200mV.

Recovery time $< 3\text{mS}$ for a 25% load change.

Case: Black coated aluminum with non-conductive
metal base.

Power Density: 17.2Watts. / Cubic inch.

MTBF: 1,000,000 hours. Mil. Std. 217, 25°C.

Operating Temperature: -25°C to +85°C range.

-10°C to +70°C at full load without derating.

From +70°C, derating linearly to half load at +85°C.
(Refer to Derating Chart).

Storage Temperature: -40°C to +105°C.

Humidity: Up to 95% RH, Non-condensing.

Temperature Coefficient: 0.02% /°C.

Cooling: Convection cooling up to 70°C at full load.

At least 100LFM moving air is recommended for
full load $> +70^\circ\text{C}$ in a confined area.

Industrial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Line Regulation measured from High to Low Lines at full load.

(3) Load Regulation measured from Full Load to 1/2 Full Load at nominal input.

(4) Correct fuse size by calculating the max. DC current drains at low Line input & Load and then adding 20-25% for the desired fuse size.

(5) Due to requests in market and advances in technology, specifications subject to change without notice.

INPUT/ OUTPUT & VOLTAGE/ CURRENT RATINGS CHART

SINGLE OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT N.L. (mA) F.L.		OUTPUT VO1(Vdc)	OUTPUT VO1(A)	CASE SIZE
HDM11-12D-S03	9.0- 36.0	50	900	3.3V	2.50A	DM1A
HDM11-12D-S05	9.0- 36.0	50	1070	5.0V	2.00A	DM1A
HDM11-12D-S09	9.0- 36.0	50	1050	9.0V	1.10A	DM1A
HDM11-12D-S12	9.0- 36.0	50	1050	12.0V	0.83A	DM1A
HDM11-12D-S15	9.0- 36.0	50	1050	15.0V	0.67A	DM1A
HDM11-24D-S03	9.0- 36.0	50	450	3.3V	2.50A	DM1A
HDM11-24D-S05	9.0- 36.0	50	535	5.0V	2.00A	DM1A
HDM11-24D-S09	9.0- 36.0	50	525	9.0V	1.10A	DM1A
HDM11-24D-S12	9.0- 36.0	50	525	12.0V	0.83A	DM1A
HDM11-24D-S15	9.0- 36.0	50	525	15.0V	0.67A	DM1A
HDM11-48D-S03	18.0- 72.0	46	220	3.3V	2.50A	DM1A
HDM11-48D-S05	18.0- 72.0	46	260	5.0V	2.00A	DM1A
HDM11-48D-S09	18.0- 72.0	46	255	9.0V	1.10A	DM1A
HDM11-48D-S12	18.0- 72.0	46	255	12.0V	0.83A	DM1A
HDM11-48D-S15	18.0- 72.0	46	255	15.0V	0.67A	DM1A

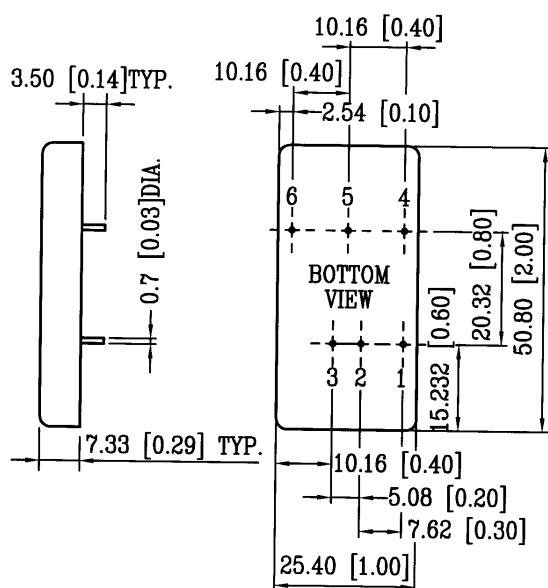
DUAL OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT N.L. (mA) F.L.		OUTPUT (Vdc) +VO1 -VO2		OUTPUT (A) +VO1 -VO2		CASE SIZE
HDM11-12D-D03	9.0- 36.0	50	910	+3.3V	-3.3V	1.25A	1.25A	DM1A
HDM11-12D-D05	9.0- 36.0	50	1070	+5.0V	-5.0V	1.00A	1.00A	DM1A
HDM11-12D-D12	9.0- 36.0	50	1070	+12.0V	-12.0V	0.42A	0.42A	DM1A
HDM11-12D-D15	9.0- 36.0	50	1040	+15.0V	-15.0V	0.33A	0.33A	DM1A
HDM11-24D-D03	9.0- 36.0	50	455	+3.3V	-3.3V	1.25A	1.25A	DM1A
HDM11-24D-D05	9.0- 36.0	50	535	+5.0V	-5.0V	1.00A	1.00A	DM1A
HDM11-24D-D12	9.0- 36.0	50	535	+12.0V	-12.0V	0.42A	0.42A	DM1A
HDM11-24D-D15	9.0- 36.0	50	520	+15.0V	-15.0V	0.33A	0.33A	DM1A
HDM11-48D-D03	18.0- 72.0	46	220	+3.3V	-3.3V	1.25A	1.25A	DM1A
HDM11-48D-D05	18.0- 72.0	46	260	+5.0V	-5.0V	1.00A	1.00A	DM1A
HDM11-48D-D12	18.0- 72.0	46	260	+12.0V	-12.0V	0.42A	0.42A	DM1A
HDM11-48D-D15	18.0- 72.0	46	255	+15.0V	-15.0V	0.33A	0.33A	DM1A

Symbols: " " OVP built-in. "||" Double Feedback.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 20.0g (0.71 Oz.)

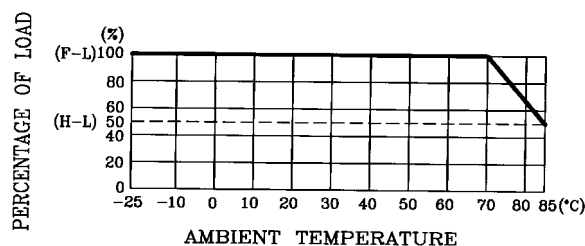


CASE SIZE: DM1A

PIN ASSIGNMENT

PIN NO.	SINGLE	DUAL
PIN# 1.	Remote ON/OFF	Remote ON/OFF
PIN# 2.	- INPUT/-Vin	- INPUT/-Vin
PIN# 3.	+ INPUT	+ INPUT
PIN# 4.	DC-COM	- VO2
PIN# 5.	NO PIN	DC-COM
PIN# 6.	VO1	+VO1

DERATING CHART





PCB-MOUNT DC-DC CONVERTER ENCAPSULATED MODULES INDUSTRIAL GRADE 17 WATTS SINGLE & DUAL OUTPUT HDM17-S & HDM17-D SERIES



FEATURES:

- SINGLE & DUAL OUTPUT
- 2:1 INPUT RANGE
- 17W ISOLATED OUTPUT
- SIX-SIDED METAL SHIELD

SPECIFICATION

INPUT SPECIFICATION

Input Range: 2:1 DC input range.
See Ratings Chart.

Input Voltage: Nominal 12/24/48Vdc.

Input Current: Various with input range & load.
See Ratings Chart.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Undervoltage Shutdown: 8Vdc.

Isolation Resistor: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

Remote On/Off: TTL/CMOS-Compatible Input Control.

Positive Logic version for Standard set up :

ON(Enable)=Open(or 2.5-5.0Vdc above-Vin).

OFF(Disable)=Short(or 0-0.8Vdc above-Vin).

Negative Logic version option available by adding a "N" suffix to the end of Model #.

Remark: Logic voltage refer to -Input(-Vin).

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 1.0\%$ typical.

Line Regulation: Various with output voltages.
 $\pm 0.5\%$ typical.

Load Regulation: Various with output voltages.
Single O/P $\pm 1.0\%$ typical.
Dual O/P $\pm 2.0\%$ typical.

Noise & Ripple: Typical 100mV for 3.3V/5.0V & 1.0% for others peak to peak.

OVP: Built-in on main output.

Adjustability: Not available.

Overload Protection (OLP):
Fully protected against output overload and short circuit.
Typical 120-150% of rating output load.
Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 80-81% (various with input/output)

Switching Frequency: Fixed frequency 450K Hz.

Circuit Topology: 450K Hz. Forward Circuit.

Transient Response: Peak deviation 200mV,
Recovery time <3mSec. at 25% step load change.

Case: Black coated steel with non-conductive metal base.

Power Density: 18.0Watts. / Cubic inch.

MTBF: 1,000,000 hours to Mil. Std. 217, 25°C.

Operating Temperature: -25°C to +85°C range.
-10°C to +70°C at full load without derating.
Derating linearly from +70°C to half-load at +85°C.
(Refer to the Derating Chart).

Storage Temperature: -40°C to +105°C.

Temperature Coefficient: $\pm 0.03\%$ /°C.

Humidity: Up to 95% RH, Non-condensing.

Cooling: Convection cooling up to +70°C at full load.
At least 100LFM moving air is recommended for full load >+70°C in a confined area.

Industrial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.
(2) Line Regulation measured from High to Low Lines at full load.
(3) Load Regulation measured from Full Load to 1/2 Full Load at nominal input.
(4) Correct fuse size by calculating the max. DC current drains at low Line input & Load and then adding 20-25% for the desired fuse size.
(5) Due to requests in market and advances in technology, specifications subject to change without notice.



PCB-MOUNT DC-DC CONVERTER ENCAPSULATED MODULES INDUSTRIAL GRADE 25 WATTS DUAL OUTPUT HDM25-D SERIES



FEATURES:

- DUAL OUTPUT
- 2:1 INPUT RANGE
- 25W ISOLATED OUTPUT
- SIX-SIDED METAL SHIELD

SPECIFICATION

INPUT SPECIFICATION

Input Range: 2:1 DC input range:
4.5-9/9-18/18-36/36-72Vdc.

Input Voltage: Nominal 5/12/24/48Vdc.

Input Current: Various with input range and load.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Input Reflect Ripple Current: 45mA typical.

Isolation Resistor: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

Remote On/Off: TTL/CMOS-Compatible Input Control.

Positive Logic version for Standard set up:
ON(Enable)=Open(or 2.5-5.0Vdc above-Vin)
OFF(Disable)=Short(or 0-0.8Vdc above-Vin)

Negative Logic version option available by adding a
 "N"suffix to the end of Model #.

Remark: Voltage refer to -Input(-Vin).

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 2.0\%$ typical.

Line Regulation: $\pm 0.06\%$ typical.

Load Regulation: VO1 $\pm 0.60\%$, VO2 $\pm 0.5\%$ typical.

Noise & Ripple: 1.0% typical.

OVP: Built-in on main output VO1.

Adjustability: VO1 O/P may optionally be external
 trimmed $\pm 3.0\%$ with a fixed resistors or trim-pot.

Short Circuit Protection:
 Power fold back, and self-recovering.

Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 125-150% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 77-85% (various with input/output).

Switching Frequency: Fixed frequency 450K Hz.

Circuit Topology: 450K Hz. Forward Circuit.

Transient Response: Max. excursion 140mV,
 Recovery time $< 200 \mu\text{Sec.}$ at 25%
 step load change.

Case: Black coated copper with non-conductive
 metal base.

Power Density: 10.0 Watts. / Cubic inch.

Industrial Grade for 12B/24B/48B input.

Commercial Grade only for 5B input.

Operating Temperature: Industrial Grade -25°C to
 +85°C range. 0°C to +70°C at full load without derating.
 From +70°C derating linearly to half load at +85°C.
 (Refer to the Derating Chart for commercial grade.)

Temperature: -40°C to +105°C for industrial grade.

Temperature Coefficient: $\pm 0.03\% / ^\circ\text{C}$.

Humidity: Up to 95%RH, Non-condensing.

Cooling: Convection cooling up to +70°C at full load.
 At least 100LFM moving air is recommended for
 full load $> +71^\circ\text{C}$ in a confined area.

MTBF: 1,000,000 hours to Mil. Std. 217, 25°C.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Line Regulation measured from High to Low Lines at full load.

(3) Load Regulation measured from Full Load to 1/2 Full Load at nominal input.

(4) Correct fuse size by calculating the max. DC current drains at low Line input & Load and then adding 20-25% for the desired fuse size.

(5) Due to requests in market and advances in technology, specifications subject to change without notice.

INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

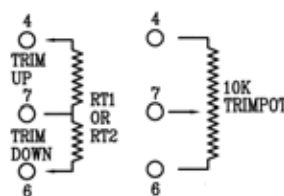
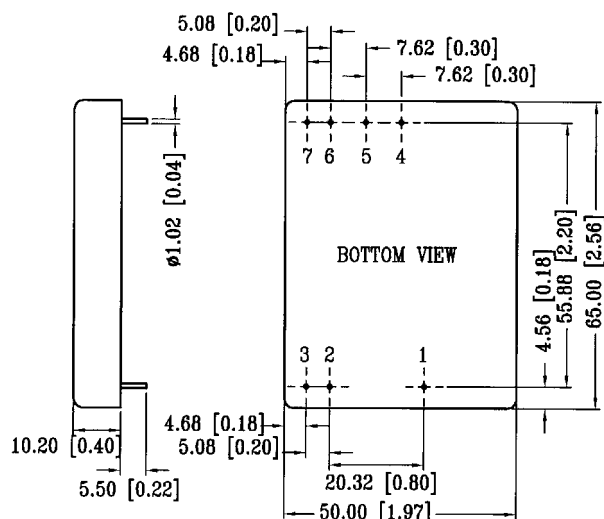
DUAL OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT (Vdc)		OUTPUT (A)		CASE SIZE
		N.L. (mA)	F.L.	+VO1@★	-VO2	+VO1	-VO2	
HDM25-5B-D12	4.5- 9.0	150	5,020	+12.0V	-12.0V	0.84A	0.84A	DM2H
HDM25-5B-D15	4.5- 9.0	150	5,020	+15.0V	-15.0V	0.67A	0.67A	DM2H
HDM25-12B-D12	9.0-18.0	100	2,100	+12.0V	-12.0V	0.84A	0.84A	DM2H
HDM25-12B-D15	9.0-18.0	100	2,100	+15.0V	-15.0V	0.67A	0.67A	DM2H
HDM25-24B-D12	18.0-36.0	60	1,050	+12.0V	-12.0V	0.84A	0.84A	DM2H
HDM25-24B-D15	18.0-36.0	60	1,050	+15.0V	-15.0V	0.67A	0.67A	DM2H
HDM25-48B-D12	36.0-72.0	60	530	+12.0V	-12.0V	0.84A	0.84A	DM2H
HDM25-48B-D15	36.0-72.0	60	530	+15.0V	-15.0V	0.67A	0.67A	DM2H

Symbols: "★" OVP built-in. "@" Adjustable. "||" Double Feedback.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT:85 g (3.0 Oz.)

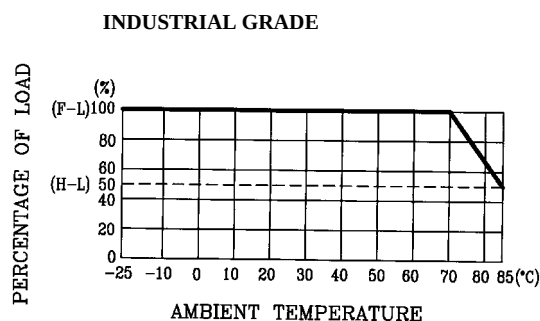
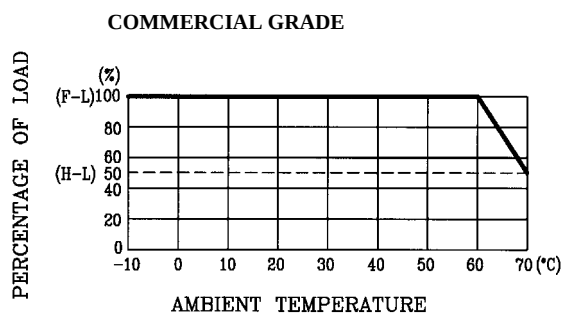


PIN ASSIGNMENT

PIN NO.	DUAL
PIN# 1.	+INPUT
PIN# 2.	-INPUT
PIN# 3.	REMOTE ON/OFF
PIN# 4.	+VO1
PIN# 5.	DC-COM
PIN# 6.	-VO2
PIN# 7.	OUTPUT TRIM

CASE SIZE: DM2H

DERATING CHART





PCB-MOUNT DC-DC CONVERTER ENCAPSULATED MODULES 30 WATTS SINGLE OUTPUT HDM30-S SERIES



FEATURES:

- SINGLE OUTPUT
- WIDE 4:1 & 2:1 INPUT RANGE
- 30W ISOLATED OUTPUT
- SIX-SIDED SHIELD

SPECIFICATION

INPUT SPECIFICATION

Input Range: Wide 4:1 & 2:1 DC input range.
See Ratings Chart.

Input Voltage: Nominal 12/24/48Vdc.

Input Current: Various with input range and load.
See Ratings Chart.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Overvoltage Shutdown: Optional. Factory set.

Undervoltage Shutdown: 8Vdc.

Isolation Resistor: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

Remote On/Off: TTL/CMOS-Compatible Input Control.
(Voltage refer to the -Input)

Positive Logic version for Standard set up:
ON(Enable)=Open(or 2.5-5.0Vdc above-Vin).
OFF(Disable)=Short(or 0-0.8Vdc above-Vin).

Negative Logic version option available by adding a
“N” suffix to the end of Model #.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 2.0\%$ typical.

Line Regulation: Various with input & output voltages.
 $\pm 0.5\%$ typical.

Load Regulation: Various with output voltages.
 $\pm 1.0\%$ typical.

Noise & Ripple: Typical 100mV for 3.3V/5.0V &
1.0% for others peak to peak.

OVP: Built-in on main output.

Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 81% various with input.

Switching Frequency: Fixed frequency 100K Hz.

Circuit Topology: Forward Circuit.

Transient Response: Peak deviation 200mV,
Recovery time < 3mSec. at 25% step load change.

Case: Black coated copper with non-conductive
metal base.

Power Density: 10 Watts. / Cubic inch.

MTBF: Type 1,000,000 hours to Mil. Std.217, 25°C.

Operating Temperature: -10 to +70°C range.
0°C to +60°C full load without derating.
From +60°C, derating linearly to half load at +70°C.
(Refer to Derating Chart.)

Temperature: -20°C to +85°C.

Temperature Coefficient: 0.02% /°C.

Cooling: Convection cooling up to +60°C at full load.
At least 100LFM moving air is recommended for
full load > +60°C in a confined area.

Humidity: Up to 95%RH, Non-condensing.

Commercial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.
(2) Line Regulation measured from High to Low Lines at full load.
(3) Load Regulation measured from Full Load to 1/2 Full Load at nominal input.
(4) Correct fuse size by calculating the max. DC current drains at low Line input & Load and then adding 20-25% for the desired fuse size.
(5) Due to requests in market and advances in technology, specifications subject to change without notice.

INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

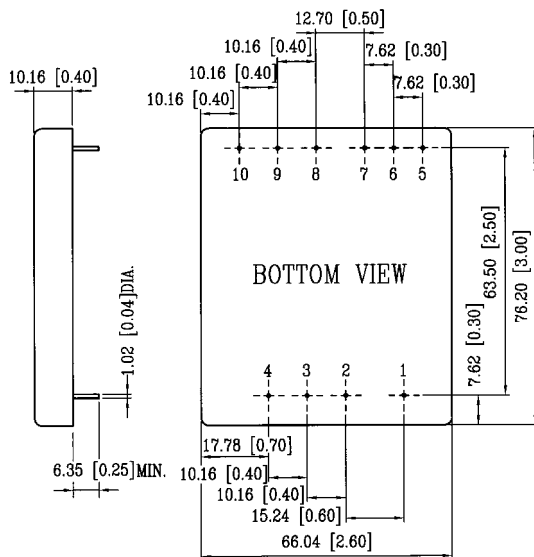
SINGLE OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT N. L. (mA) F.L.	OUTPUT VO1(Vdc) @	OUTPUT VO1(A)	CASE SIZE
HDM30-12B-S03	9.0- 18.0	30 2300	3.3V	6.40A	DM2A
HDM30-12B-S05	9.0- 18.0	30 2700	5.0V	5.00A	DM2A
HDM30-12B-S09	9.0- 18.0	30 2650	9.0V	2.80A	DM2A
HDM30-12B-S12	9.0- 18.0	30 2750	12.0V	2.20A	DM2A
HDM30-12B-S15	9.0- 18.0	30 2800	15.0V	1.80A	DM2A
HDM30-12B-S24	9.0- 18.0	30 3100	24.0V	1.25A	DM2A
HDM30-24B-S03	18.0- 36.0	20 1150	3.3V	6.40A	DM2A
HDM30-24B-S05	18.0- 36.0	20 1350	5.0V	5.00A	DM2A
HDM30-24B-S09	18.0- 36.0	20 1325	9.0V	2.80A	DM2A
HDM30-24B-S12	18.0- 36.0	20 1375	12.0V	2.20A	DM2A
HDM30-24B-S15	18.0- 36.0	20 1400	15.0V	1.80A	DM2A
HDM30-24B-S24	18.0- 36.0	20 1550	24.0V	1.25A	DM2A
HDM30-48B-S03	36.0- 72.0	15 575	3.3V	6.40A	DM2A
HDM30-48B-S05	36.0- 72.0	15 675	5.0V	5.00A	DM2A
HDM30-48B-S09	36.0- 72.0	15 662	9.0V	2.80A	DM2A
HDM30-48B-S12	36.0- 72.0	15 687	12.0V	2.20A	DM2A
HDM30-48B-S15	36.0- 72.0	15 700	15.0V	1.80A	DM2A
HDM30-48B-S24	36.0- 72.0	15 775	24.0V	1.25A	DM2A
HDM30-24D-S03	9.0- 36.0	30 1175	3.3V	6.40A	DM2A
HDM30-24D-S05	9.0- 36.0	30 1375	5.0V	5.00A	DM2A
HDM30-24D-S09	9.0- 36.0	30 1350	9.0V	2.80A	DM2A
HDM30-24D-S12	9.0- 36.0	30 1400	12.0V	2.20A	DM2A
HDM30-24D-S15	9.0- 36.0	30 1425	15.0V	1.80A	DM2A
HDM30-24D-S24	9.0- 36.0	30 1575	24.0V	1.25A	DM2A
HDM30-48D-S03	20.0- 72.0	20 587	3.3V	6.40A	DM2A
HDM30-48D-S05	20.0- 72.0	20 687	5.0V	5.00A	DM2A
HDM30-48D-S09	20.0- 72.0	20 675	9.0V	2.80A	DM2A
HDM30-48D-S12	20.0- 72.0	20 700	12.0V	2.20A	DM2A
HDM30-48D-S15	20.0- 72.0	20 712	15.0V	1.80A	DM2A
HDM30-48D-S24	20.0- 72.0	20 787	24.0V	1.25A	DM2A

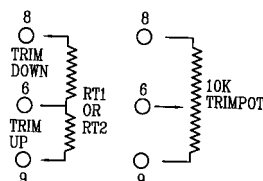
Symbols: " " OVP built-in. "@ " Adjustable.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 156.0g (5.6 Oz.)



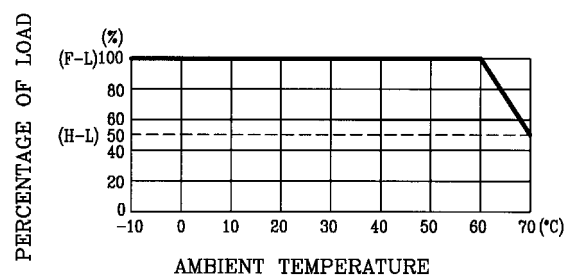
CASE SIZE: DM2A



PIN ASSIGNMENT

PIN NO.	SINGLE
PIN #1.	Remote ON/OFF
PIN #2.	+INPUT
PIN #3.	-INPUT/-Vin
PIN #4.	NO PIN
PIN #5.	NO PIN
PIN #6.	OUTPUT TRIM
PIN #7.	NO PIN
PIN #8.	+VO1
PIN #9.	DC-COM
PIN #10.	NO PIN

DERATING CHART





PCB-MOUNT DC-DC CONVERTER ENCAPSULATED MODULES 30 WATTS DUAL OUTPUT HDM30-D SERIES



FEATURES:

- DUAL OUTPUT
- WIDE 4:1 & 2:1 INPUT RANGE
- 30W ISOLATED OUTPUT
- SIX-SIDED METAL SHIELD

SPECIFICATION

INPUT SPECIFICATION

Input Range: Wide 4:1 & 2:1 DC input range.
See Ratings Chart.

Input Voltage: Nominal 12/24/48Vdc.

Input Current: Various with input range and load.
See Ratings Chart.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Overvoltage Shutdown: Optional. Factory set.

Undervoltage Shutdown: 8Vdc.

Isolation Resistor: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

Remote On/Off: TTL/CMOS-Compatible Input Control.
(Voltage refer to the -Input).

Positive Logic version for Standard set up:
ON(Enable)=Open(or 2.5-5.0Vdc above-Vin).
OFF(Disable)=Short(or 0-0.8Vdc above-Vin).

Negative Logic version option available by adding a
"N" suffix to the end of Model #.

Remark: Logic voltage refer to -Input (-Vin)

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 2.0\%$ typical.

Line Regulation: Various with input voltages.
 $\pm 0.5\%$ typical.

Load Regulation: Various with output voltages.
 VO1 $\pm 1.0\%$ typical.
 VO2 $\pm 2.0\%$ typical.

Noise & Ripple: 100mV for 3.3V/5.0V & 1.0% typical
for other output peak to peak.

OVP: Built-in on main output.

Adjustability: VO1 O/P may optionally be external
trimmed $\pm 3.0\%$ with a fixed resistors or trim-pot.

Overload Protection (OLP):
 Fully protected against output overload and short circuit.
 OLP set at about 125-150% rating output wattage.
 Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 76- 81%, various with input &
output voltage.

Switching Frequency: Fixed frequency 100K Hz.

Circuit Topology: 100K Hz. Forward Circuit.

Transient Response: Peak deviation 200mV,
Recovery time < 3mSec. at 25% step load change.

Case: Black coated copper with non-conductive metal base.

Power Density: 10.0 Watts. / Cubic inch.

MTBF: 1,000,000 hours to Mil. Std. 271, 25°C.

Operating Temperature: -10°C to +70°C range.
 0°C to +60°C at full load without derating.
 From +60°C, derating linearly to half load at +70°C.
 (Refer to the Derating Chart).

Temperature: -20°C to +85°C.

Temperature Coefficient: $\pm 0.03\%$ /°C.

Cooling: Convection cooling up to +60°C at full load.
 At least 100LFM moving air is recommended
for F-L > +60°C in a confined area.

Humidity: Up to 95%RH, Non-condensing.

Commercial Grade only.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Line Regulation measured from High to Low Lines at full load.

(3) Load Regulation measured from Full Load to 1/2 Full Load at nominal input.

(4) Correct fuse size by calculating the max. DC current drains at low Line input & Load and then adding 20-25% for the desired fuse size.

(5) Due to requests in market and advances in technology, specifications subject to change without notice.

INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

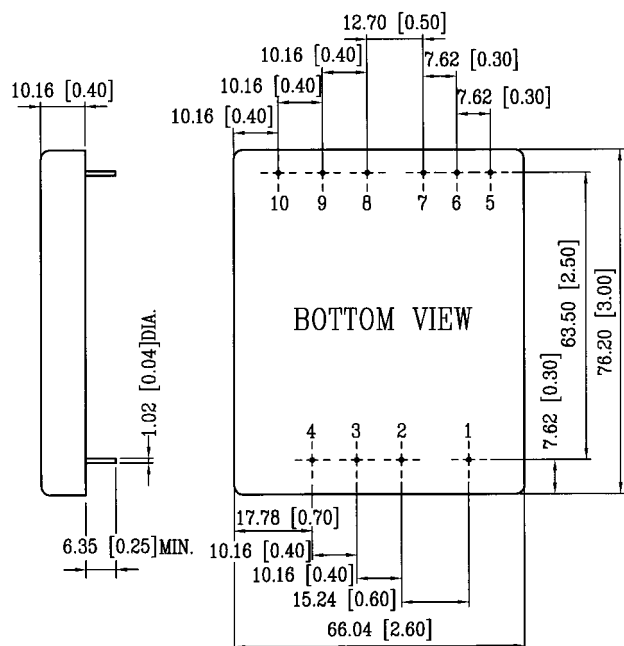
DUAL OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT (Vdc)		OUTPUT (A)		CASE SIZE
		N.L. (mA)	F.L.	+VO1@★	-VO2	+VO1	-VO2	
HDM30-12B-D05	9.0- 18.0	30	2,670	+5.0V	-5.0V	2.50A	2.50A	DM2A
HDM30-12B-D12	9.0- 18.0	30	2,500	+12.0V	-12.0V	1.00A	1.00A	DM2A
HDM30-12B-D15	9.0- 18.0	30	2,590	+15.0V	-15.0V	0.83A	0.83A	DM2A
HDM30-24B-D05	18.0- 36.0	20	1,560	+5.0V	-5.0V	3.00A	3.00A	DM2A
HDM30-24B-D12	18.0- 36.0	20	1,525	+12.0V	-12.0V	1.25A	1.25A	DM2A
HDM30-24B-D15	18.0- 36.0	20	1,525	+15.0V	-15.0V	1.00A	1.00A	DM2A
HDM30-48B-D05	36.0- 72.0	20	780	+5.0V	-5.0V	3.00A	3.00A	DM2A
HDM30-48B-D12	36.0- 72.0	20	763	+12.0V	-12.0V	1.25A	1.25A	DM2A
HDM30-48B-D15	36.0- 72.0	20	763	+15.0V	-15.0V	1.00A	1.00A	DM2A
HDM30-24D-D05	9.0- 36.0	40	1,350	+ 5.0V	- 5.0V	2.50A	2.50A	DM2A
HDM30-24D-D12	9.0- 36.0	40	1,265	+12.0V	-12.0V	1.00A	1.00A	DM2A
HDM30-24D-D15	9.0- 36.0	40	1,310	+15.0V	-15.0V	0.83A	0.83A	DM2A
HDM30-48D-D05	20.0- 72.0	30	800	+5.0V	-5.0V	3.00A	3.00A	DM2A
HDM30-48D-D12	20.0- 72.0	30	775	+12.0V	-12.0V	1.25A	1.25A	DM2A
HDM30-48D-D15	20.0- 72.0	30	775	+15.0V	-15.0V	1.00A	1.00A	DM2A

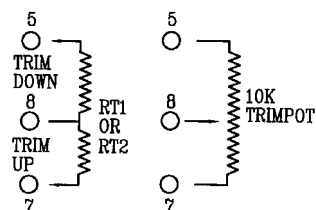
Symbols: "★" OVP built-in. "@" Adjustable. "||" Double Feedback.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 156.0g (5.6 Oz.)



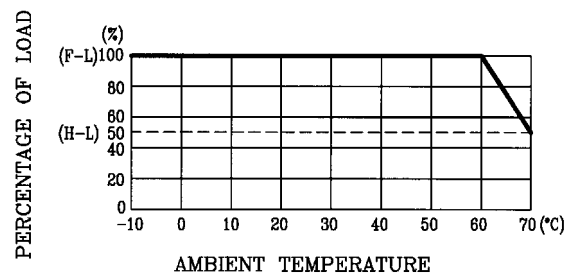
CASE SIZE: DM2A



PIN ASSIGNMENT

PIN NO.	DUAL
PIN# 1.	Remote ON/OFF
PIN# 2.	+ INPUT
PIN# 3.	-INPUT/-Vin
PIN# 4.	NO PIN
PIN# 5.	+VO1
PIN# 6.	DC-COM
PIN# 7.	-VO2
PIN# 8.	OUTPUT TRIM
PIN# 9.	NO PIN
PIN# 10.	NO PIN

DERATING CHART





PCB-MOUNT DC-DC CONVERTER ENCAPSULATED MODULES 30 WATTS TRIPLE OUTPUT HDM30-T SERIES



FEATURES:

- TRIPLE OUTPUT
- WIDE 4:1 & 2:1 INPUT RANGE
- 30W ISOLATED OUTPUT
- SIX-SIDED METAL SHIELD

SPECIFICATION

INPUT SPECIFICATION

Input Range: Wide 4:1 & 2:1 DC input range.
See Ratings Chart.

Input Voltage: Nominal 12/24/48Vdc.

Input Current: Various with input range and load.
See Ratings Chart.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Overvoltage Shutdown: Optional. Factory set.

Undervoltage Shutdown: 8Vdc.

Isolation Resistor: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

Remote On/Off: TTL/CMOS-Compatible Input Control.

Positive Logic version for Standard set up:
ON(Enable)=Open(or 2.5-5.0Vdc above-Vin)
OFF(Disable)=Short(or 0-0.8Vdc above-Vin)

Negative Logic version option available by adding a
“N” suffix to the end of Model #.

Remark: [Voltage refer to -Input (-Vin)].

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 2.0\%$ typical.

Line Regulation: Various with input voltages. $\pm 0.5\%$ typ.

Load Regulation: Various with output voltages.
VO1 & VO3 $\pm 2.0\%$ typical.
VO2 $\pm 5.0\%$ typical.

Noise & Ripple: 100mV for 3.3V/5.0V & 1.0% typical
for other output peak to peak.

OVP: Built-in on main output.

Adjustability: VO1 O/P may optionally be external
trimmed $\pm 3.0\%$ with a fixed resistors or trim-pot.

Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 78-81%. (various with input/output)

Switching Frequency: Fixed frequency 100K Hz.

Circuit Topology: 100K Hz. Forward Circuit.

Transient Response: Peak deviation 200mV,
Recovery time < 3mSec. at 25% step load change.

Case: Black coated copper with non-conductive metal base.

Power Density: 10.0 Watts. / Cubic inch.

MTBF: 1,000,000 hours Mil.Std.271, 25°C.

Commercial Grade only.

Operating Temperature: -10°C to +70°C range.
0°C to +60°C at full load without derating.
From +60°C derating linearly to half load at +70°C.
(Refer to the Derating Chart).

Storage Temperature: -20 to +85°C.

Temperature Coefficient: $\pm 0.03\%$ /°C.

Cooling: Convection cooling up to +60°C at full load.
At least 100LFM moving air is recommended for full
load > +60°C in a confined area.

Humidity: Up to 95%RH, Non-condensing.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.
(2) Line Regulation measured from High to Low Lines at full load.
(3) Load Regulation measured from Full Load to 1/2 Full Load at nominal input.
(4) Correct fuse size by calculating the max. DC current drains at low Line input & Load and then adding 20-25% for the desired fuse size.
(5) Due to requests in market and advances in technology, specifications subject to change without notice.

INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

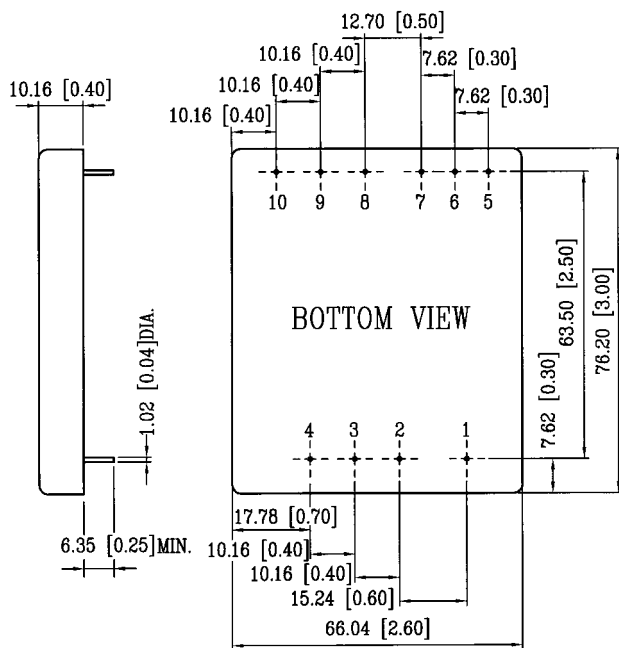
TRIPLE OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT (Vdc)			OUTPUT (A)			CASE SIZE
		N.L. (mA)	F.L.	+VO1★@	+VO2†	-VO3	+VO1	+VO2	-VO3	
HDM30-12B-T5/12	9.0- 18.0	50	2,550	+5.0V	+12.0V	-12.0V	2.5A	0.5A	0.5A	DM2A
HDM30-12B-T5/15	9.0- 18.0	50	2,550	+5.0V	+15.0V	-15.0V	2.5A	0.4A	0.4A	DM2A
HDM30-12B-T5/+12,-5	9.0- 18.0	50	2,500	+5.0V	+12.0V	- 5.0V	2.5A	0.5A	1.0A	DM2A
HDM30-24B-T5/12	18.0- 36.0	40	1,520	+5.0V	+12.0V	-12.0V	3.0A	0.6A	0.6A	DM2A
HDM30-24B-T5/15	18.0- 36.0	40	1,550	+5.0V	+15.0V	-15.0V	3.0A	0.5A	0.5A	DM2A
HDM30-24B-T5/+12,-5	18.0- 36.0	40	1,420	+5.0V	+12.0V	- 5.0V	3.0A	0.6A	1.0A	DM2A
HDM30-48B-T5/12	36.0- 72.0	40	760	+5.0V	+12.0V	-12.0V	3.0A	0.6A	0.6A	DM2A
HDM30-48B-T5/15	36.0- 72.0	40	775	+5.0V	+15.0V	-15.0V	3.0A	0.5A	0.5A	DM2A
HDM30-48B-T5/+12,-5	36.0- 72.0	40	710	+5.0V	+12.0V	- 5.0V	3.0A	0.6A	1.0A	DM2A
HDM30-24D-T5/12	9.0- 36.0	60	1,325	+5.0V	+12.0V	-12.0V	2.5A	0.5A	0.5A	DM2A
HDM30-24D-T5/15	9.0- 36.0	60	1,325	+5.0V	+15.0V	-15.0V	2.5A	0.4A	0.4A	DM2A
HDM30-24D-T5/+12,-5	9.0- 36.0	60	1,300	+5.0V	+12.0V	- 5.0V	2.5A	0.5A	1.0A	DM2A
HDM30-48D-T5/12	20.0- 72.0	50	785	+5.0V	+12.0V	-12.0V	3.0A	0.6A	0.6A	DM2A
HDM30-48D-T5/15	20.0- 72.0	50	800	+5.0V	+15.0V	-15.0V	3.0A	0.5A	0.5A	DM2A
HDM30-48D-T5/+12,-5	20.0- 72.0	50	735	+5.0V	+12.0V	- 5.0V	3.0A	0.6A	1.0A	DM2A

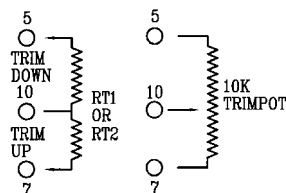
Symbols: "★" OVP built-in. "@" Adjustable. " || " Double Feedback. "†" Stacked on main O/P.

MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 156.0g (5.6 Oz.)



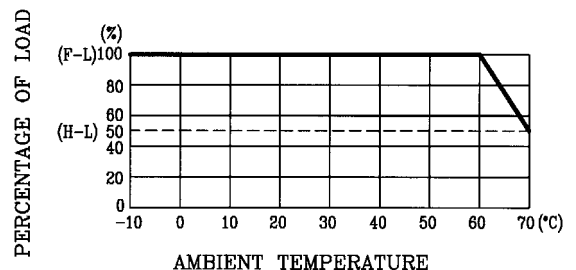
CASE SIZE: DM2A



PIN ASSIGNMENT

PIN NO.	TRIPLE
PIN# 1.	Remote ON/OFF
PIN# 2.	+INPUT
PIN# 3.	- INPUT/-Vin
PIN# 4.	NO PIN
PIN# 5.	+VO2
PIN# 6.	DC-COM
PIN# 7.	-VO3
PIN# 8.	+ VO1
PIN# 9.	NO PIN
PIN# 10.	OUTPUT TRIM

DERATING CHART





PCB-MOUNT DC-DC CONVERTER ENCAPSULATED MODULES 40 WATTS SINGLE OUTPUT HDM40-S SERIES



FEATURES:

- SINGLE OUTPUT
- WIDE 4:1 INPUT RANGE
- 40W ISOLATED OUTPUT
- SIX-SIDED SHIELD

SPECIFICATION

INPUT SPECIFICATION

Input Range: Wide 4:1 DC input range.
See Ratings Chart.

Input Voltage: Nominal 24/48Vdc.

Input Current: Various with input range and load.
See Ratings Chart.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Undervoltage Shutdown: Factory set.

Isolation Resistor: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

Remote On/Off: TTL/CMOS-Compatible Input Control.
(Voltage refer to the -Input)

Positive Logic version for Standard set up:
ON(Enable)=Open(or 2.5-5.0Vdc above-Vin).
OFF(Disable)=Short(or 0-0.8Vdc above-Vin).

Negative Logic version option available by adding a
“N” suffix to the end of Model #.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 2.0\%$ typical.

Line Regulation: Various with input & output voltages.
 $\pm 0.02\%$ typical.

Load Regulation: Various with output voltages.
 $\pm 0.06\%$ typical.

Noise & Ripple: Typical 1.0% peak to peak.

OVP: Built-in on main output.

Overload Protection (OLP):
Fully protected against output overload and short circuit.
OLP set at about 125-150% rating output wattage.
Consult the factory for OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 80-86%. (various with input/output)

Switching Frequency: Fixed frequency 230K Hz.

Circuit Topology: Forward Circuit.

Transient Response: Peak deviation 280mV,
Recovery time < 0.3mSec. at 25% step load change.

Case: Black coated copper with non-conductive metal base.

Power Density: 25 Watts. / Cubic inch.

Operating Temperature: -40 to +85°C range.
0°C to +55°C full load without derating.
From +55°C, derating linearly to half load at +80°C.
(Refer to Derating Chart.)

Storage Temperature: -40°C to +85°C.

Cooling: Convection cooling(-40°C +55°C) at full load.

Humidity: Up to 95%RH, Non-condensing.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.
(2) Line Regulation measured from High to Low Lines at full load.
(3) Load Regulation measured from Full Load to 1/2 Full Load at nominal input.
(4) Correct fuse size by calculating the max. DC current drain at low Line input & Load and then adding 20-25 % for the desired fuse size.
(5) Due to requests in market and advances in technology, specifications subject to change without notice.

INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

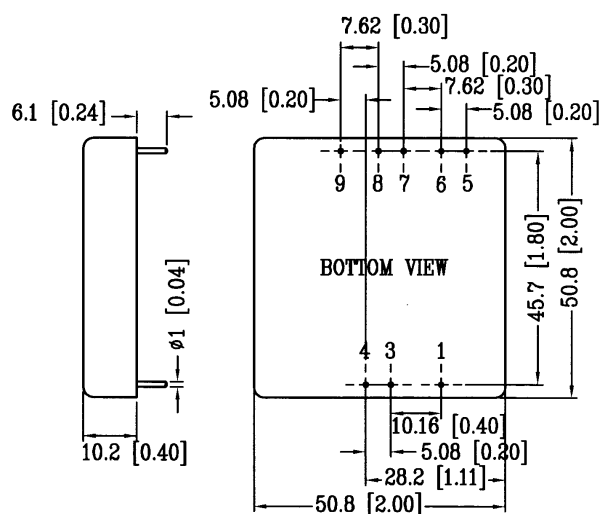
SINGLE OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT N. L. (mA) F.L.		OUTPUT VO1(Vdc) @	OUTPUT VO1(A)
HDM40-24D-S03	9.0- 36.0	50	1700	3.3V	10.00A
HDM40-24D-S05	9.0- 36.0	10	2100	5.0V	8.00A
HDM40-24D-S12	9.0- 36.0	30	2000	12.0V	3.35A
HDM40-24D-S15	9.0- 36.0	30	1960	15.0V	2.66A
HDM40-48D-S03	18.0- 75.0	30	800	3.3V	10.00A
HDM40-48D-S05	18.0- 75.0	10	1040	5.0V	8.00A
HDM40-48D-S12	18.0- 75.0	20	1000	12.0V	3.35A
HDM40-48D-S15	18.0- 75.0	20	980	15.0V	2.66A

Symbols: " " OVP built-in. "@" Adjustable.

MECHANICAL DIMENSIONS: MM [INCHES]

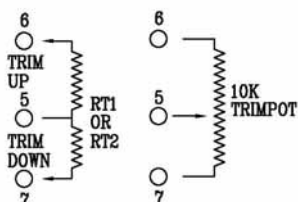
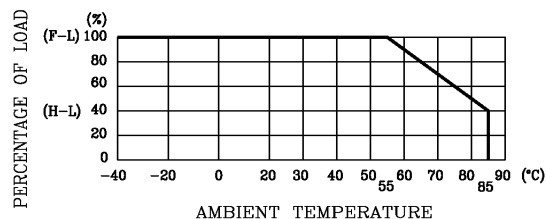
WEIGHT: 156.0g (5.6 Oz.)



PIN ASSIGNMENT

PIN NO.	SINGLE
PIN #1.	Remote ON/OFF
PIN #2.	NO PIN
PIN #3.	-INPUT
PIN #4.	+INPUT
PIN #5.	OUTPUT TRIM
PIN #6.	DC COM
PIN #7.	+VO1
PIN #8.	+Remote Sense
PIN #9.	-Remote Sense

DERATING CHART





ON-BOARD DC-DC CONVERTER POWER MODULES INDUSTRIAL GRADE WITH ACTIVE CLAMP/RESET PWM IC 100 WATTS SINGLE OUTPUT HDMA100 SERIES



FEATURES:

- WIDE 2:1 INPUT VOLTAGE RANGE
- 1500VDC ISOLATION
- ACTIVE CLAMP/RESET PWM IC
- HIGH-EFFICIENCY BY SYNCHRONOUS RECTIFIER
- UNDER-VOLTAGE LOCKOUT
- MEET INTERNATIONAL SAFETY STANDARDS

SPECIFICATION

INPUT SPECIFICATION

Input Range: Wide 2:1 Input DC Range 36-78Vdc.
Input Voltage: Nominal 48Vdc.
Input Current: Typical 2.4A full load and 0.04A no-load at 48Vdc nominal input.
Input Fuse: Use external fuse.
Inrush Current: 84A at 48Vdc.
Input Filter: Pi-Network for EMI suppression.
Under-Voltage Protection (UVP): Lock-out activated at 30-34Vdc@ 48Vdc nominal input
Input Reflected Ripple Current: 240mA pk-pk at 48Vdc.
Input Terminal ripple Current: 360mA pk-pk at 48Vdc.
Isolation Voltage: 1,500Vdc input-output.
EMI: Six-sided metal shielding.
Over Temp. Protection: By NTC.
Remote On/Off: TTL/CMOS-Compatible input control.
Positive Logic version for Standard set up:
ON(Enable)=Open(or 2.5-5.0Vdc above-Vin)
OFF(Disable)=Short(or 0-0.8Vdc above-Vin)

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.
Output Current: See Ratings Chart.
Output Wattage: Typical & continuous 100W.
Line Regulation: Various with output voltages, typ. $\pm 0.1\%$.
Load Regulation: Various with output voltages, typ. $\pm 1.0\%$.
Noise & Ripple: Typical 100mV, 1% pk-pk.
OVP: Built-in.
Adjustability: Factory set.
Remote Sense: Built-in.
Synchronous Rectifier: Built-in.
Overload Protection (OLP):
 Fully protected against overload and short circuit.
 OLP set at typical 125-150% Nominal at 48Vdc.
 Consult the factory for special OLP setting.

GENERAL SPECIFICATION

Efficiency: Typical 84% (various with output voltage)
Switching Frequency: Fixed frequency 230K Hz.
Circuit Topology: Active Clamp Forward Circuit.
Transient Response: Peak deviation 400mV and recovers within 0.2mS after 25% load-change.
Safety Standard: IEC60950-1 Class I.
Case: Black coated steel with non-conductive metal case.
Operating Temperature: -40 to +85°C.
 Power derating details; please refer to the Derating Chart.
Storage Temperature: -55 to +125 °C.
Cooling: At least 100LFM moving air is recommended for full load > 0°C in a confined area. Air flow vs. power derating details, please refer to the Derating Chart.
Power Density: 36.6 Watts / Cubic inch.
Industrial Grade.

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise spec.
 (2) Line Regulation measured from High to Low Lines at full load.
 (3) Load Regulation measured from Full-Load (F-L) to Half-Load(H-L)at nominal input.
 (4) Correct fuse size by calculating the max. DC current drain at low Line input & adding 20-25% for desired fuse size.
 (5) Due to requests in market and advances in technology, specifications subject to change without notice.

INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

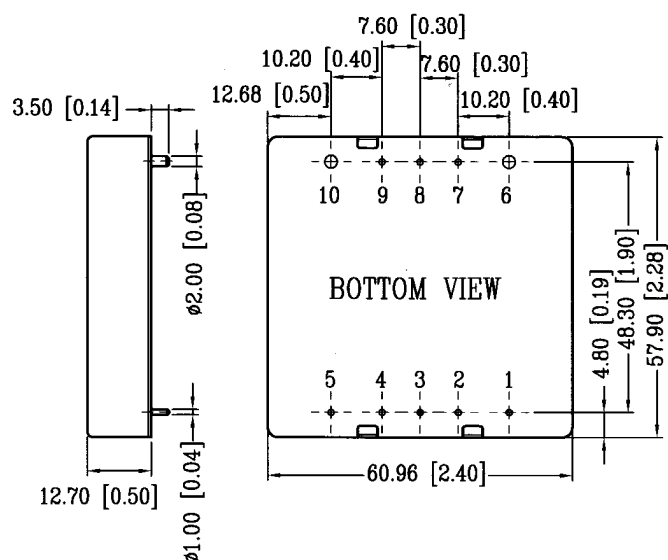
SINGLE OUTPUT

MODEL NO.	INPUT Vdc		OUTPUT VO1 #				
	Range	Nominal	Min.	Typ.	Volt.	Max.	Peak
HDMA100-48B-S033300	36-78Vdc	48Vdc	0A	30.0A	3.3V	36.0A	36.0A
HDMA100-48B-S120083	36-78Vdc	48Vdc	0A	8.3A	12.0V	10.0A	10.0A

Symbol: " " OVP built-in. "#" Remote sensing.

MECHANICAL DIMENSIONS: MM [INCHES]

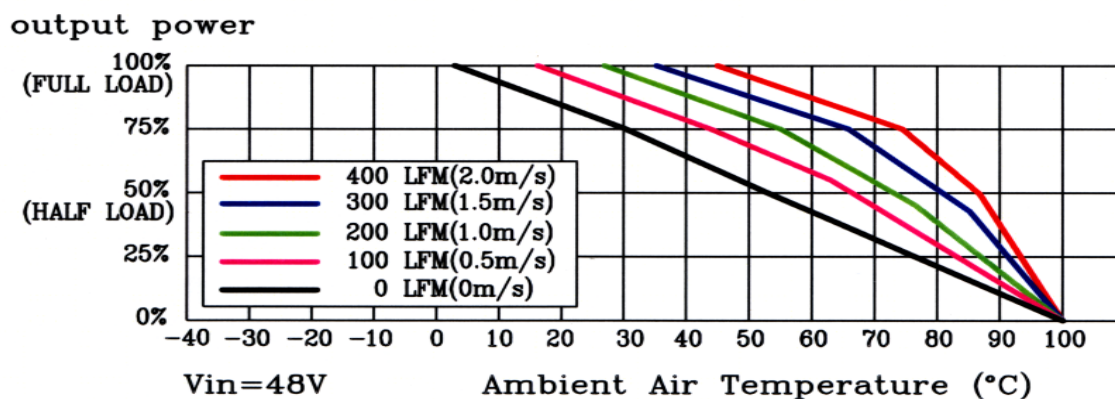
WEIGHT: 60.0g (2.10oz)



PIN ASSIGNMENT

PIN NO.	SINGLE
PIN# 1.	+Vin
PIN# 2.	Remote On/Off
PIN# 3.	SYNC
PIN# 4.	CASE
PIN# 5.	-Vin
PIN# 6.	+VO1
PIN# 7.	+S
PIN# 8.	TRIM
PIN# 9.	-S
PIN# 10.	DC COM

DERATING CHART



OPTION A:AC INPUT PLUGS

DESCRIPTIONS (REFER TO APPENDIX)	Wallmount & Desktop	Pig-tail Plug&Cord
Type 0 2-blade fold-out type.	WM0 (0) 	Remark: () Plug Type Symbol
Type 1 U.S.A,Japan,Taiwan etc. 2-blade type.	WM1 (1) 	PT1(A) 
Type 2 U.S.A,Canada 3-blade type.	WM2 (2) 	PT2(B) 
Type 3 Euro-Stecker,2-prong.	WM3 (3) 	PT3(C) 
Type 4 Schuko-stecker,2-prong No.GND	WM4 (4)  WM4N (4N) 	PT4(D) 
Type 5 UK Type 3-Blade No.GND	WM5 (5)  WM5N (5N) 	PT5(E) 
Type 6 Australia/China,2-blade. 3-blade.	WM6 (6)  WM6G (6G) 	PT6(F)  PT6G(Fg) 
Type 7 IEC320-3P 3-Prong Inlet IEC320-3PL (low current) IEC320-3P Pig Tail Inlet	DT7 (7)  DT7L (7L) 	PT7(G) 
Type 8 IEC320-2P 2-Prong Inlet	DT8 (8) 	

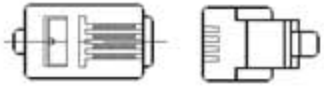
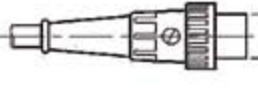
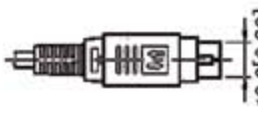
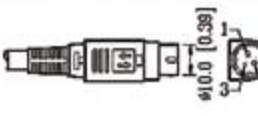
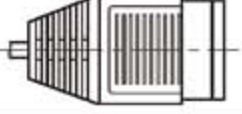
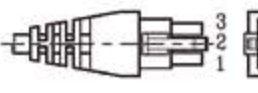
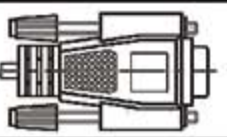
OPTION B:DC OUTPUT PLUGS & CONNECTORS

A.Single Output Plug (REFER TO APPENDIX)

1. PF	Plug straight Female Type		
2. PLF	Plug L-Female Type		
3. PFI	Plug straight Female I Type		
4. PLFI	Plug L-Female I Type		
5. PM	Plug straight Male Type		
6. PLM	Plug L-Male Type		
7. PGS	EIAJ RC-5320 Straight Type		
8. PGL	EIAJ RC-5320 L-shape Type		
PGS-1			
PGS-2			
PGS-3			
PGS-4			
9. PMF	Plug Molex Mini-FIT 2 pins Plug		

OPTION B:DC OUTPUT PLUGS & CONNECTORS

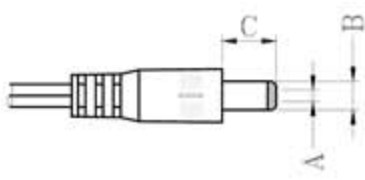
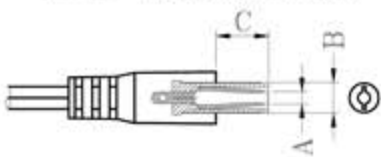
B. Multiple Output Connector (REFER TO APPENDIX)

1. PH	Plug Modular 4-8 pins Connector		
2. PD	Plug DIN 3-8 pins Connector	 ø13.3 [0.52]	
3. PT	Plug with Twist-lock ring 3-8 pins Connector	 ø13.5 [0.53]	
4. PMD	Plug Mini-DIN 3-8 pins Connector	 ø9.0 [0.35]	
5. PLMD	Plug with Lock Mini-DIN 3-8 pins Connector	 ø9.0 [0.36]	
6. PQMD	Plug Quick-lock Mini-Din 3-4 pins Connector	 ø10.0 [0.39]	
7. PHR	Plug Atari type Connector		
8. PHJ	Plug Hosiden Jack Connector		
9. PMX	Plug Molex 3-6 pins Connector		
10. PMF	Plug Molex Mini-FIT 3-6 pins Connector		
11. PSD	Plug Sub-D 9 pins Connector		

APPENDIX

SINGLE OUTPUT PLUGS & CONNECTORS

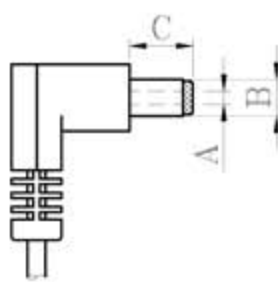
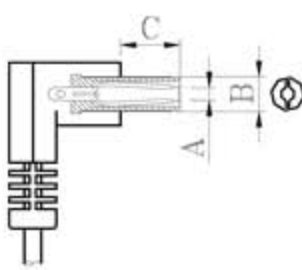
Dimension mm(inch)

ITEM	A(ID)Φ	B(OD) Φ	C(L)	TYPE
PF-01*	2.10(0.08)	5.00(0.20)	9.50(0.37)	PF Plug straight Female Type   (PF-XX* ★:Turning Fork Type) 
PF-02*	2.10(0.08)	5.50(0.22)	9.50(0.37)	
PF-03*	2.50(0.10)	5.00(0.20)	9.50(0.37)	
PF-04*	2.50(0.10)	5.50(0.22)	9.50(0.37)	
PF-05	2.10(0.08)	5.00(0.20)	11.0(0.43)	
PF-06	2.10(0.08)	5.50(0.22)	11.0(0.43)	
PF-07	2.50(0.10)	5.00(0.20)	11.0(0.43)	
PF-08	2.50(0.10)	5.50(0.22)	11.0(0.43)	
PF-09	2.10(0.08)	5.00(0.20)	12.0(0.47)	
PF-10	2.10(0.08)	5.50(0.22)	12.0(0.47)	
PF-11	2.50(0.10)	5.00(0.20)	12.0(0.47)	
PF-12	2.50(0.10)	5.50(0.22)	12.0(0.47)	
PF-13	2.10(0.08)	5.50(0.22)	12.5(0.49)	
PF-14	2.10(0.08)	5.00(0.20)	14.0(0.55)	
PF-15	2.10(0.08)	5.50(0.22)	14.0(0.55)	
PF-16	2.50(0.10)	5.50(0.22)	14.0(0.55)	
PF-17	1.35(0.05)	3.50(0.18)	6.50(0.26)	
PF-18	2.50(0.10)	5.50(0.22)	10.0(0.39)	
PF-19	3.00(0.12)	6.30(0.25)	12.0(0.47)	
PF-20	1.50(0.06)	5.50(0.22)	11.0(0.43)	
PF-21	1.70(0.07)	4.00(0.16)	11.0(0.43)	
PF-22	1.35(0.05)	3.50(0.18)	9.50(0.37)	
PF-23	1.35(0.05)	3.50(0.18)	6.00(0.24)	
PF-24	1.35(0.05)	3.50(0.18)	7.00(0.28)	
PF-25	2.10(0.08)	5.50(0.22)	8.76(0.35)	
PF-26	0.70(0.03)	2.35(0.09)	10.5(0.41)	
PF-27	3.50(0.14)	5.00(0.20)	12.0(0.47)	
PF-28	1.70(0.07)	4.75(0.19)	9.50(0.37)	
PF-29	1.70(0.07)	4.00(0.16)	13.0(0.51)	
PF-30	1.70(0.07)	4.00(0.16)	9.50(0.37)	
PF-31	3.30(0.13)	5.50(0.22)	9.50(0.37)	
PF-32	1.35(0.05)	3.80(0.15)	7.00(0.28)	

APPENDIX

SINGLE OUTPUT PLUGS & CONNECTORS

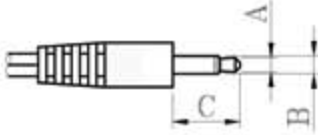
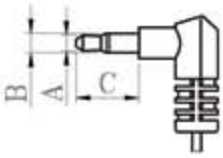
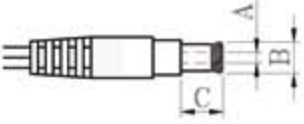
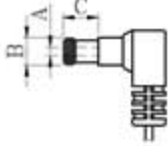
Dimension mm(inch)

ITEM	A(ID)Φ	B(OD) Φ	C(L)	TYPE
PLF-01*	2.10(0.08)	5.00(0.20)	9.50(0.37)	PLF Plug L-Female Type   (PF-XX* ★:Turning Fork Type) 
PLF-02*	2.10(0.08)	5.50(0.22)	9.50(0.37)	
PLF-03*	2.50(0.10)	5.00(0.20)	9.50(0.37)	
PLF-04*	2.50(0.10)	5.50(0.22)	9.50(0.37)	
PLF-05	2.10(0.08)	5.00(0.20)	11.0(0.43)	
PLF-06	2.10(0.08)	5.50(0.22)	11.0(0.43)	
PLF-07	2.50(0.10)	5.00(0.20)	11.0(0.43)	
PLF-08	2.50(0.10)	5.50(0.22)	11.0(0.43)	
PLF-09	2.10(0.08)	5.00(0.20)	12.0(0.47)	
PLF-10	2.10(0.08)	5.50(0.22)	12.0(0.47)	
PLF-11	2.50(0.10)	5.00(0.20)	12.0(0.47)	
PLF-12	2.50(0.10)	5.50(0.22)	12.0(0.47)	
PLF-13	2.10(0.08)	5.50(0.22)	12.5(0.49)	
PLF-14	2.10(0.08)	5.00(0.20)	14.0(0.55)	
PLF-15	2.10(0.08)	5.50(0.22)	14.0(0.55)	
PLF-16	2.50(0.10)	5.50(0.22)	14.0(0.55)	
PLF-17	1.35(0.05)	3.50(0.18)	6.50(0.26)	
PLF-18	2.50(0.10)	5.50(0.22)	10.0(0.39)	
PLF-19	3.00(0.12)	6.30(0.25)	12.0(0.47)	
PLF-20	1.50(0.06)	5.50(0.22)	11.0(0.43)	
PLF-21	1.70(0.07)	4.00(0.16)	11.0(0.43)	
PLF-22	1.35(0.05)	3.50(0.18)	9.50(0.37)	
PLF-23	1.35(0.05)	3.50(0.18)	6.00(0.24)	
PLF-24	1.35(0.05)	3.50(0.18)	7.00(0.28)	
PLF-25	2.10(0.08)	5.50(0.22)	8.76(0.35)	
PLF-26	0.70(0.03)	2.35(0.09)	10.5(0.41)	
PLF-27	3.50(0.14)	5.00(0.20)	12.0(0.47)	
PLF-28	1.70(0.07)	4.75(0.19)	9.50(0.37)	
PLF-29	1.70(0.07)	4.00(0.16)	13.0(0.51)	
PLF-30	1.70(0.07)	4.00(0.16)	9.50(0.37)	
PLF-31	3.30(0.13)	5.50(0.22)	9.50(0.37)	
PLF-32	1.35(0.05)	3.80(0.15)	7.00(0.28)	

APPENDIX

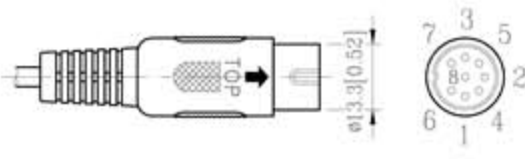
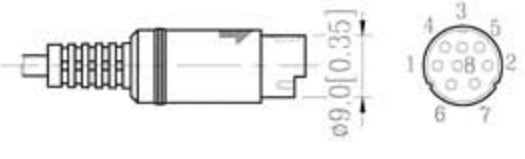
SINGLE OUTPUT PLUGS & CONNECTORS (for reference)

Dimension mm(inch)

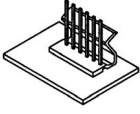
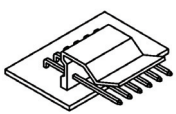
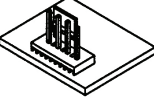
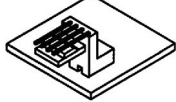
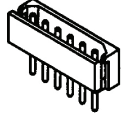
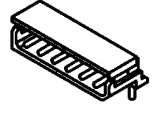
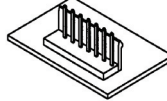
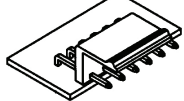
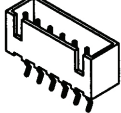
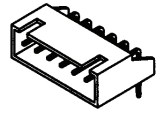
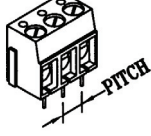
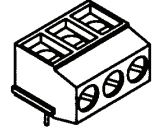
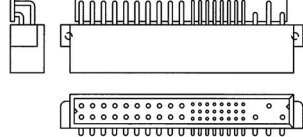
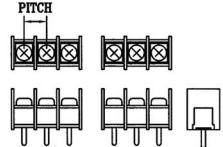
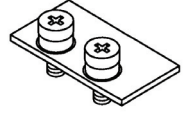
ITEM	A(ID)Φ	B(OD) Φ	C(L)	TYPE
PM-01	2.3(0.09)	2.5(0.10)	11.0(0.43)	PM Plug straight Male Type  
PM-02	2.3(0.09)	2.5(0.10)	11.5(0.45)	
PM-03	2.3(0.09)	2.5(0.10)	12.0(0.47)	
PM-04	2.3(0.09)	2.5(0.10)	14.0(0.55)	
PM-05	3.0(0.12)	3.5(0.14)	11.0(0.43)	
PM-06	3.0(0.12)	3.5(0.14)	14.0(0.55)	
PM-07	3.0(0.12)	3.5(0.14)	14.5(0.57)	
PLM-01	2.3(0.09)	2.5(0.10)	11.0(0.43)	PLM Plug L-Male Type  
PLM-02	2.3(0.09)	2.5(0.10)	11.5(0.45)	
PLM-03	2.3(0.09)	2.5(0.10)	12.0(0.47)	
PLM-04	2.3(0.09)	2.5(0.10)	14.0(0.55)	
PLM-05	3.0(0.12)	3.5(0.14)	11.0(0.43)	
PLM-06	3.0(0.12)	3.5(0.14)	14.0(0.55)	
PLM-07	3.0(0.12)	3.5(0.14)	14.5(0.57)	
PFI	1.9(0.07)	6.2(0.24)	8.00(0.31)	PFI Plug straight Female I Type  
PLFI	1.9(0.07)	6.2(0.24)	8.00(0.31)	PLFI Plug L-Female I Type  

APPENDIX

SIZE OF MULTIPLE DC OUTPUT PLUGS & CONNECTORS (for reference)

ITEM	PINS	PINS LOCATIONS	TYPE
PD-3	3	NO. 1,2,3	PD Plug DIN 3-8 pins Connector  Dimension mm(inch) 
PD-4	4	NO. 4,5,6,7	
PD-5	5	NO. 1,2,3,4,5	
PD-6	6	NO.2,4,5,6,7,8	
PD-7	7	NO.1,2,3,4,5,6,7	
PD-8	8	NO.1,2,3,4,5,6,7,8	
PMD-3	3	NO. 1,2,3	PMD Plug Mini-DIN 3-8 pins Connector  Dimension mm(inch) 
PMD-4	4	NO. 1,2,4,5	
PMD-5	5	NO. 1,2,4,5,6	
PMD-6	6	NO. 1,2,4,5,6,7	
PMD-7	7	NO. 1,2,3,4,5,6,7	
PMD-8	8	NO. 1,2,3,4,5,6,7,8	

INPUT/OUTPUT CONNECTORS FOR INTERNAL POWER SUPPLY

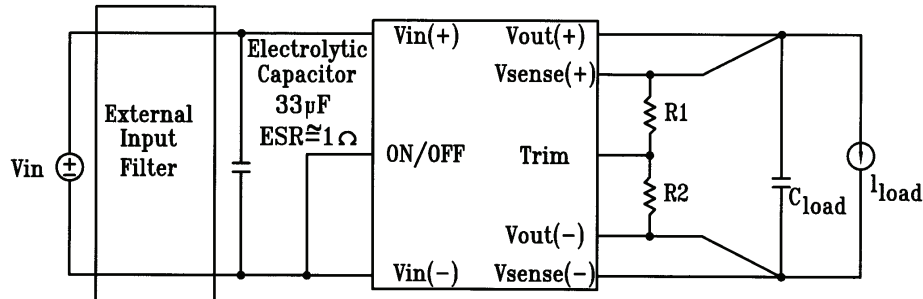
CODE #	DESCRIPTIONS, TYPE NO. & VENDORS	Vertical Type or Top Entry Type	Right Angle Type, Side or Front Entry Type
V-M	0.156"(3.96mm) pitch Friction-Lock Header (MOLEX or equivalent) Vertical Type: Molex # 5273/Mating House 5195 or 5239 series. Right Angle Type: Molex # 5274/Mating House 5195 or 5239 series.		
H-M	0.098"(2.5mm) pitch Friction-Lock Header (MOLEX or equivalent) Vertical Type: Molex # 5045/Mating House 5051 series. Right Angle Type: Molex # 5046/Mating House 5051 series.		
X-M	0.098"(2.5mm) pitch Shrouded Header (MOLEX or equivalent) Straight Type: Molex # 5267-NA/Mating House 5264-N. Right Angle Type: Molex # 5268-NA/Mating House 5264-N.		
V-H	3.96mm(0.156") pitch Locking Header (Japan JST) Top Entry Type: JST # B(X)P-VH/Mating House VHR-(X)N. Side Entry Type: JST # B(X)PS-VH/Mating House VHR-(X)N. <i>Remark: (X) numbers of circuit.</i>		
X-H	2.5mm(0.098") pitch Shrouded Header (Japan JST) Top Entry Type: JST # B(X)B-XH-A/Mating House XHP-(X). Side Entry Type: JST # S(X)B-XH-A/Mating House XHP-(X). <i>Remark: (X) numbers of circuit.</i>		
M-T	5.0mm(0.197") pitch Mini PCB Terminal Block, (KARSON, DINKLE) Top Wire Inlet Type: Karson # 300 series. Front Wire Inlet Type: Karson # 310 series.		
F-M	4.2mm(1.65") pitch Mini-Fit, Jr. & BMI Header, (MOLEX or equivalent) Vertical Header: Molex Jr. # 5566-N/Mating Receptacle 5557-N. Molex BMI # A-42440-N/Mating Receptacle A-42385-N. Right Angle Header: Molex Jr. # 5569-N/Mating Receptacle 5557-N. Molex BMI # A-42404/Mating Receptacle A-42385-N. <i>Remark: (N) numbers of circuit.</i>	  Jr. BMI	  Jr. BMI
CPI	CompactPCI Power Connector (POSITRONIC or equivalent). Right Angle PCB Mount Connector: Positronic # PCIH series.		
B-S	Barrier-Strip Screw Terminal Block (DINKLE or equivalent). Pitch Option: 7.62mm(0.30")/8.25mm(0.325")/9.5mm(0.374")/ 10.0mm(0.394")/11.0mm(0.433").		
S-T	Screw Terminal.		

APPLICATION CONSIDERATIONS FOR PCB-MOUNTED MODULAR

Output Voltage Adjustment By External Resistor

The output voltage will be rose as the resistance of R2 is decrease. (Reference below circuit)

The output voltage will be dropped as the resistance of R1 is decrease.



Common Mode Noise

There are two parasitic capacitors on the Base plate .One exists between Mosfet and Base plate, the other exists between Rectifier and Base plate (reference fig 1). They occur about the 50—70MHz common mode noise, but it should not affect the operation of the system. Don't use long lead probe to measure any waveform, because the inductance on the long leads adversely impact the common mode rejection capability (reference fig 2).

All of our HDH series have two capacitors to bypass the noise, one is placed between Base plate and input, the other is placed between Base plate and output. (Reference fig 3)

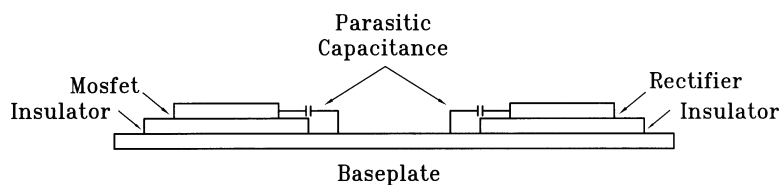


Fig1

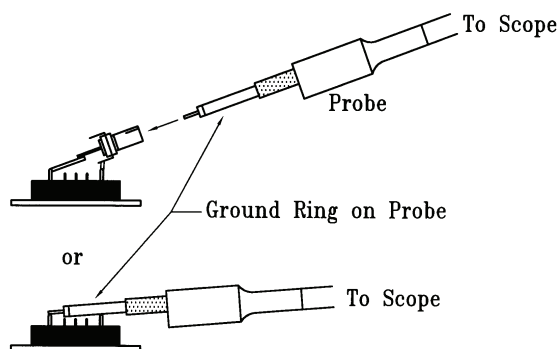


Fig2

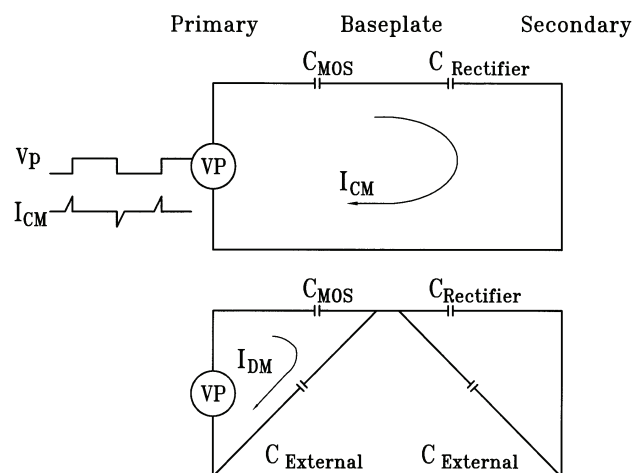


Fig3



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