

# **HiTRON**

## **ON-BOARD DC-DC CONVERTER ENCAPSULATED MODULES 15 WATTS SINGLE & DUAL OUTPUT HDM15-S & HDM15-D SERIES**



### **FEATURES:**

- **SINGLE & DUAL OUTPUT.**
- **WIDE 4:1 & 2:1 INPUT RANGE.**
- **15W 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 Resistance:** 1,000 Mega Ohms.  
**Isolation Voltage:** 1,500Vdc.  
**EMI:** Six-sided metal shielding.  
**Remote On/Off:** TTL/CMOS-Compatible Input Control.  
Logic input reference to -Input/-Vin.  
Logic [1]/Open(or 2.5-7.0Vdc above-Vin)=ON.  
Logic [2]/Short(or 0-0.08Vdc above-Vin)=OFF.

#### **OUTPUT SPECIFICATION**

**Output Voltage:** See Ratings Chart.  
**Output Current:** See Ratings Chart.  
**Voltage Accuracy:** Main O/P  $\pm 2.0\%$  typ.  
**Line Regulation:**  $\pm 0.5\%$  typ.  
**Load Regulation:** Single O/P  $\pm 1.0\%$  typ.  
Dual O/P  $\pm 2.0\%$  typ.  
**Noise & Ripple:** Typ. 100mV for 3.3V/5.0V &  
1.0% for others peak to peak.  
**OVP:** Built-in on main output.  
**Adjustability:** Single Output only may optionally be  
externally trimmed  $\pm 3.0\%$  with  
a fixed resistor or trim-pot.  
**Short Circuit Protection:** Power fold back,  
Self-recovering.  
**Overload Protection:** About 130% of overrange  
foldback type.

#### **GENERAL SPECIFICATION**

**Efficiency:** Typ.80%, various with input.  
**Switching Frequency:** Fixed frequency.100K Hz.  
**Circuit Topology:** 100K Hz. forward circuit.  
**Transient Response:** Full to 1/2 load <200  $\mu$ Sec.  
**Case:** Black coated steel with non-conductive  
metal base.  
**Weight:** 65.0g (2.4 Oz.).  
**Power Density:** 10 Watts./ Cubic inch.

**Operating Temperature:** -25°C to +71°C range.  
-20°C to +60°C @ full load without derating.  
**Temperature:** -40°C to +105°C.  
**Temperature Coefficient:** 0.02%/°C.  
**Cooling:** Convection cooling up to +60°C @ 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 drain at low Line input & Load and then adding 20-25% for the desired fuse size.

# INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

## SINGLE OUTPUT

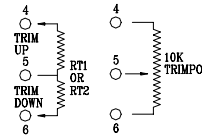
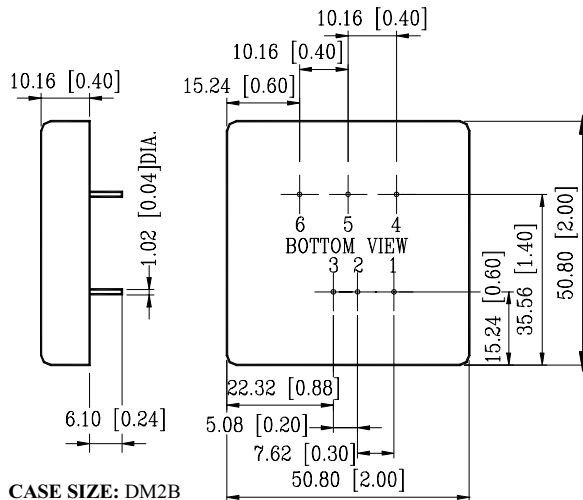
MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT VOI(Vdc)		CASE SIZE
		N. L.	F.L. (mA)	VOI(Vdc)	VOI(A)	
HDM15-12B-S03	9.0- 18.0	10	1150	3.3V	3.00A	DM2B
HDM15-12B-S05	9.0- 18.0	10	1550	5.0V	3.00A	DM2B
HDM15-12B-S09	9.0- 18.0	10	1550	9.0V	1.67A	DM2B
HDM15-12B-S12	9.0- 18.0	10	1540	12.0V	1.25A	DM2B
HDM15-12B-S15	9.0- 18.0	10	1540	15.0V	1.00A	DM2B
HDM15-12B-S24	9.0- 18.0	10	1550	24.0V	0.63A	DM2B
HDM15-24B-S03	18.0- 36.0	20	575	3.3V	3.00A	DM2B
HDM15-24B-S05	18.0- 36.0	20	775	5.0V	3.00A	DM2B
HDM15-24B-S09	18.0- 36.0	20	775	9.0V	1.67A	DM2B
HDM15-24B-S12	18.0- 36.0	20	770	12.0V	1.25A	DM2B
HDM15-24B-S15	18.0- 36.0	20	770	15.0V	1.00A	DM2B
HDM15-24B-S24	18.0- 36.0	20	770	24.0V	0.63A	DM2B
HDM15-48B-S03	36.0- 72.0	20	288	3.3V	3.00A	DM2B
HDM15-48B-S05	36.0- 72.0	20	387	5.0V	3.00A	DM2B
HDM15-48B-S09	36.0- 72.0	20	387	9.0V	1.67A	DM2B
HDM15-48B-S12	36.0- 72.0	20	385	12.0V	1.25A	DM2B
HDM15-48B-S15	36.0- 72.0	20	385	15.0V	1.00A	DM2B
HDM15-48B-S24	36.0- 72.0	20	387	24.0V	0.63A	DM2B
HDM15-24D-S03	9.0- 36.0	30	585	3.3V	3.00A	DM2B
HDM15-24D-S05	9.0- 36.0	30	785	5.0V	3.00A	DM2B
HDM15-24D-S09	9.0- 36.0	30	785	9.0V	1.67A	DM2B
HDM15-24D-S12	9.0- 36.0	30	780	12.0V	1.25A	DM2B
HDM15-24D-S15	9.0- 36.0	30	780	15.0V	1.00A	DM2B
HDM15-24D-S24	9.0- 36.0	30	785	24.0V	0.63A	DM2B
HDM15-48D-S03	20.0- 72.0	20	292	3.3V	3.00A	DM2B
HDM15-48D-S05	20.0- 72.0	20	392	5.0V	3.00A	DM2B
HDM15-48D-S09	20.0- 72.0	20	392	9.0V	1.67A	DM2B
HDM15-48D-S12	20.0- 72.0	20	390	12.0V	1.25A	DM2B
HDM15-48D-S15	20.0- 72.0	20	390	15.0V	1.00A	DM2B
HDM15-48D-S24	20.0- 72.0	20	392	24.0V	0.63A	DM2B

## DUAL OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT(Vdc)		OUTPUT(A)		CASE SIZE
		N. L.	F.L. (mA)	+VO1	-VO2	+VO1	-VO2	
HDM15-12B-D05	9.0- 18.0	30	1,560	+5.0V	-5.0V	1.50A	1.50A	DM2B
HDM15-12B-D12	9.0- 18.0	30	1,540	+12.0V	-12.0V	0.62A	0.62A	DM2B
HDM15-12B-D15	9.0- 18.0	30	1,540	+15.0V	-15.0V	0.50A	0.50A	DM2B
HDM15-24B-D05	18.0- 36.0	20	780	+5.0V	-5.0V	1.50A	1.50A	DM2B
HDM15-24B-D12	18.0- 36.0	20	770	+12.0V	-12.0V	0.62A	0.62A	DM2B
HDM15-24B-D15	18.0- 36.0	20	770	+15.0V	-15.0V	0.50A	0.50A	DM2B
HDM15-48B-D05	36.0- 72.0	20	390	+5.0V	-5.0V	1.50A	1.50A	DM2B
HDM15-48B-D12	36.0- 72.0	20	385	+12.0V	-12.0V	0.62A	0.62A	DM2B
HDM15-48B-D15	36.0- 72.0	20	385	+15.0V	-15.0V	0.50A	0.50A	DM2B
HDM15-24D-D05	9.0- 36.0	30	790	+5.0V	-5.0V	1.50A	1.50A	DM2B
HDM15-24D-D12	9.0- 36.0	30	780	+12.0V	-12.0V	0.62A	0.62A	DM2B
HDM15-24D-D15	9.0- 36.0	30	780	+15.0V	-15.0V	0.50A	0.50A	DM2B
HDM15-48D-D05	20.0- 72.0	20	395	+5.0V	-5.0V	1.50A	1.50A	DM2B
HDM15-48D-D12	20.0- 72.0	20	390	+12.0V	-12.0V	0.62A	0.62A	DM2B
HDM15-48D-D15	20.0- 72.0	20	390	+15.0V	-15.0V	0.50A	0.50A	DM2B

**MECHANICAL DIMENSIONS: MM [INCHES]**

**Weight: 65.0g (2.4 Oz.).**



### 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.	OUTPUT TRIM	DC-COM
PIN #6.	VO1	+ VO1

# HiTRON

## ON-BOARD DC-DC CONVERTER ENCAPSULATED MODULES 15-WATTS TRIPLE OUTPUT HDM15-T SERIES



### FEATURES:

- TRIPLE OUTPUT
- WIDE 4:1 & 2:1 INPUT RANGE
- 15W ISOLATED OUTPUT
- SIX-SIDED METAL SHIELD

### SPECIFICATION

#### INPUT SPECIFICATION

**Input Range:** Wide 4:1 & 2:1 input DC 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.  
Logic input reference to -input/-Vin.  
Logic [1]/Open (or 2.5-7.0Vdc above-Vin)=ON.  
Logic [2]/Short (or 0-0.08Vdc above-Vin)=OFF.

#### OUTPUT SPECIFICATION

**Output Voltage:** See Ratings Chart.  
**Output Current:** See Ratings Chart.  
**Voltage Accuracy:** Main O/P  $\pm 2.0\%$  typ.  
**Line Regulation:**  $\pm 0.5\%$  typ.  
**Load Regulation:** VO1 & VO3 O/P  $\pm 2.0\%$  typ.  
Aux. VO2 O/P  $\pm 5.0\%$  typ.  
**Noise & Ripple:** Typ. 100mV for 3.3V/5.0V &  
1.0% for others peak to peak.  
**OVP:** Built-in on main output.  
**Adjustability:** Not available.  
**Short Circuit Protection:** Power fold back,  
Self-recovering.  
**Overload Protection:** About 130% of overrange  
foldback type.

#### GENERAL SPECIFICATION

**Efficiency:** Typ.80%, various with input.  
**Switching Frequency:** Fixed freq.100K Hz.  
**Circuit Topology:** 100K Hz. forward circuit.  
**Transient Response:** Full to 1/2 load <200  $\mu$ Sec.  
**Case:** Black coated steel with non-conductive  
metal base.  
**Weight:** 65.0g (2.4 Oz.)  
**Power Density:** 10 Watts. /Cubic inch

**Operating Temperature:** -25°C to +71°C range.  
-20°C to +60°C @ full load without derating.  
**Temperature:** -40°C to +105°C.  
**Temperature Coefficient:** 0.02% /°C.  
**Cooling:** Convection cooling up to +60°C @ 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 (F-L) to Half-Load (H-L) 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.

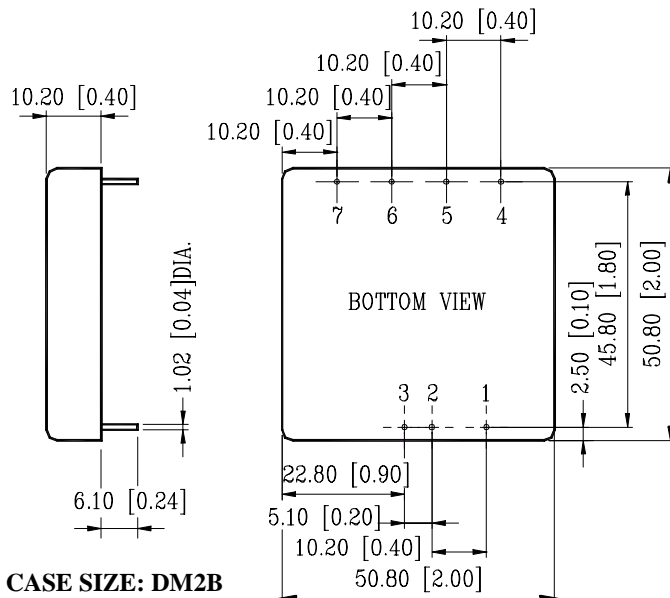
## INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

### TRIPLE OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT (Vdc)			OUTPUT (A)			CASE SIZE
		N.L.	F.L. (mA)	+VO1	+VO2	-VO3	+VO1	+VO2	-VO3	
HDM15-12B-T3/12	9.0- 18.0	20	1,300	+3.3V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-12B-T3/15	9.0- 18.0	20	1,330	+3.3V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-12B-T3/+12,-5	9.0- 18.0	20	1,200	+3.3V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-12B-T5/12	9.0- 18.0	20	1,556	+5.0V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-12B-T5/15	9.0- 18.0	20	1,562	+5.0V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-12B-T5/+12,-5	9.0- 18.0	20	1,415	+5.0V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-24B-T3/12	18.0- 36.0	20	650	+3.3V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-24B-T3/15	18.0- 36.0	20	665	+3.3V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-24B-T3/+12,-5	18.0- 36.0	20	600	+3.3V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-24B-T5/12	18.0- 36.0	20	778	+5.0V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-24B-T5/15	18.0- 36.0	20	781	+5.0V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-24B-T5/+12,-5	18.0- 36.0	20	707	+5.0V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-48B-T3/12	36.0- 72.0	15	325	+3.3V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-48B-T3/15	36.0- 72.0	15	332	+3.3V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-48B-T3/+12,-5	36.0- 72.0	15	300	+3.3V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-48B-T5/12	36.0- 72.0	15	389	+5.0V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-48B-T5/15	36.0- 72.0	15	390	+5.0V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-48B-T5/+12,-5	36.0- 72.0	15	353	+5.0V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-12D-T3/12	9.0- 36.0	30	1,320	+3.3V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-12D-T3/15	9.0- 36.0	30	1,350	+3.3V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-12D-T3/+12,-5	9.0- 36.0	30	1,220	+3.3V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-12D-T5/12	9.0- 36.0	30	1,576	+5.0V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-12D-T5/15	9.0- 36.0	30	1,582	+5.0V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-12D-T5/+12,-5	9.0- 36.0	30	1,435	+5.0V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-24D-T3/12	9.0- 36.0	30	660	+3.3V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-24D-T3/15	9.0- 36.0	30	675	+3.3V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-24D-T3/+12,-5	9.0- 36.0	30	610	+3.3V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-24D-T5/12	9.0- 36.0	30	788	+5.0V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-24D-T5/15	9.0- 36.0	30	791	+5.0V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-24D-T5/+12,-5	9.0- 36.0	30	717	+5.0V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-48D-T3/12	20.0- 72.0	15	330	+3.3V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-48D-T3/15	20.0- 72.0	15	337	+3.3V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-48D-T3/+12,-5	20.0- 72.0	15	305	+3.3V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B
HDM15-48D-T5/12	20.0- 72.0	15	394	+5.0V	+12.0V	-12.0V	1.50A	0.30A	0.30A	DM2B
HDM15-48D-T5/15	20.0- 72.0	15	395	+5.0V	+15.0V	-15.0V	1.50A	0.25A	0.25A	DM2B
HDM15-48D-T5/+12,-5	20.0- 72.0	15	358	+5.0V	+12.0V	-5.0V	1.50A	0.30A	0.50A	DM2B

### MECHANICAL DIMENSIONS: MM [INCHES]

Weight: 65.0g (2.4 Oz.)



### PIN ASSIGNMENT

PIN NO.	TRIPLE
PIN #1.	Remote ON/OFF
PIN #2.	-INPUT/-Vin
PIN #3.	+INPUT
PIN #4.	-VO3
PIN #5.	DC-COM
PIN #6.	+VO1
PIN #7.	+VO2