



**DC2U-1VR DC-DC Converter Module**

**Quick Start Guide  
Rev 1.3 08/2010**

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# Chapter 1

## Overview

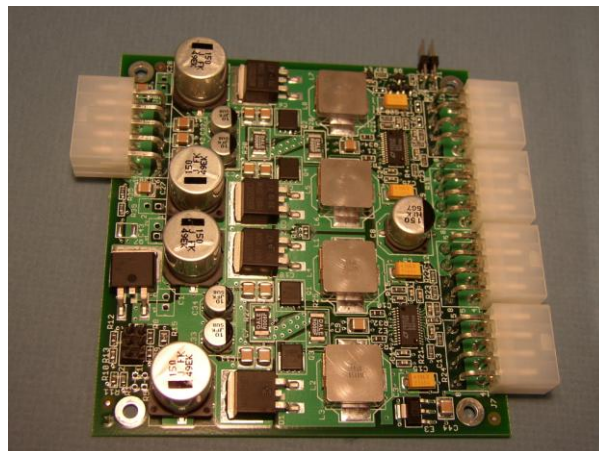
### DC2U-1VR DC-DC Converter

#### 1.1 General Description

The DC2U-1VR is a high efficiency DC-DC converter to be used with select OceanServer Intelligent Battery and Power System (IBPS) modules. It can be used with any of the BB-xx, MP-xx, and XP-xx series modules. These modules allow designers to add Smart rechargeable Lithium Ion battery power to a variety of devices. The DC2U-1V can be added to these IBPS modules to provide regulated DC output.

- The DC2U-1VR is a 240W high efficiency DC – DC regulator (requires fan above 100 Watts).
- Up to 96% efficient.
- User configured to output 19V, 24V, 28V, or 48V.
- Input voltages from 12V to 24V. Voltage in must be a minimum of 1V less than Voltage out (step-up regulator).

#### 1.2 Picture of the DC2U-1VR



### 1.3 Getting Started

Ground yourself by touching a metal surface before getting started. Static charges on your body can damage electronic components. Handle the DC2U-1VR by the edge; do not touch board components. OceanServer recommends using a static ground strap. Before cabling the DC2U-1VR to one of the supported IBPS modules (BB-xx, MP-xx and XP-xx) be sure no Battery Packs or Power Supply is attached. Also, insure the device that the DC2U-1VR is going to be used in is not being powered by another power source prior to installation.

Input power is connected to J3, J4, J5, and J7. The output power is connected to J8. An ON/OFF signal is required to turn the regulator on or off. This is connected to J1. See Section 2.2 for more details. OceanServer offers a 12" Momentary ON/OFF Switch Assembly (part# 19-00027-00).

### 1.4 Recommended Cables

OceanServer offers both input and output cables for the DC2U-1VR. Below are the standard cables OceanServer offers:

#### ***Input Cables (Raw Battery Output from IBPS module to DC2U-1V)***

19-00026-05 IBPS Module TO DC2U-1V CONVERTER, 8P STRAIGHT THROUGH, 5"  
19-00026-10 IBPS Module TO DC2U-1V CONVERTER, 8P STRAIGHT THROUGH, 10"  
19-00026-20 IBPS Module TO DC2U-1V CONVERTER, 8P STRAIGHT THROUGH, 20"  
19-00050-00\* XP-08S and MP-08S IBPS Modules TO DC2U-1VR Converter 10"  
\* XP-08S and MP-08S have two power output connectors so the 19-00050-00 cable should be used to connect the DC2U-1V

#### ***Output Cables (Regulated Power Output from DC2U-1VR)***

19-00044-30 DC2U-1VR REGULATED POWER OUT, 30"

#### ***ON/OFF Control Assembly***

19-00027-00 Momentary ON/OFF Switch Assembly, 12"

All cables can be found on OceanServer's Online Store:  
<http://www.oceanserver-store.com/cables.html>

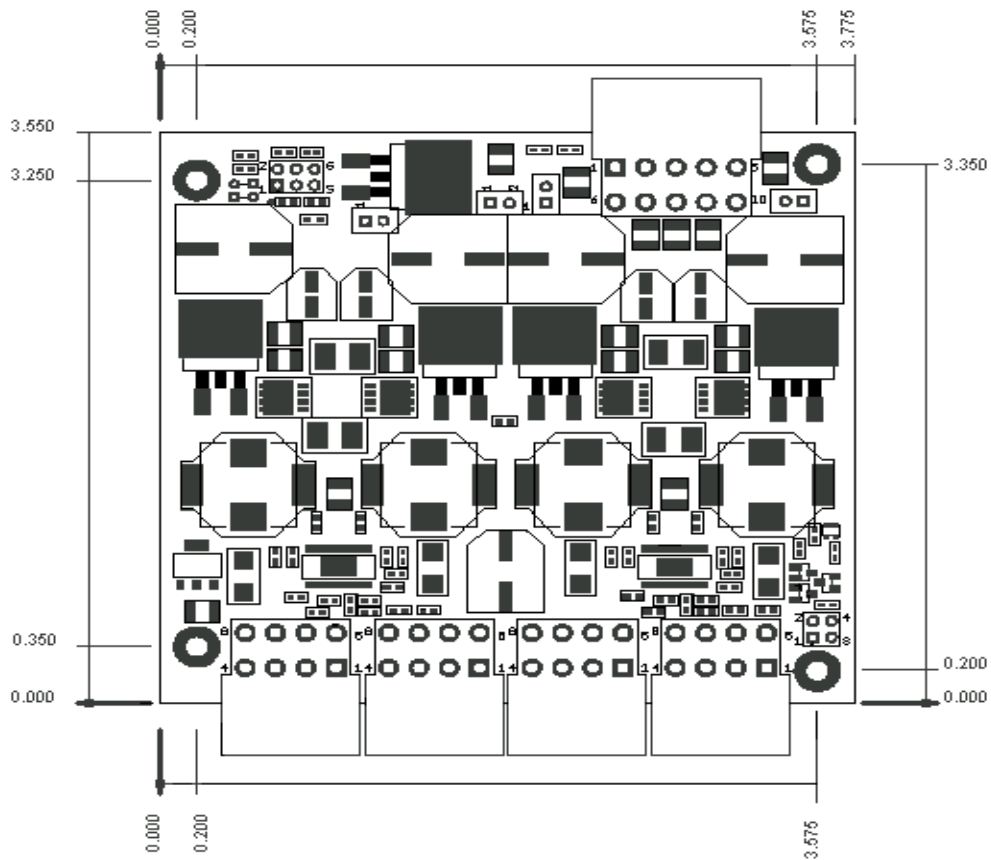
# Chapter 2

## Details

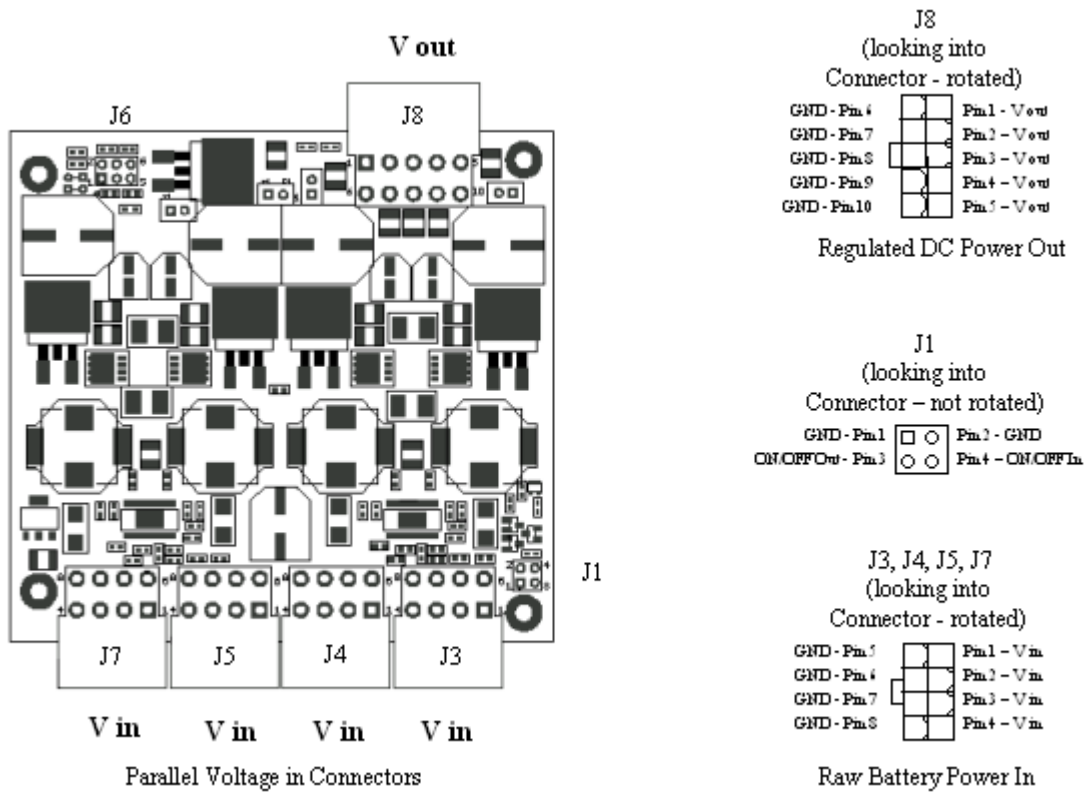
### 2.1 DC2U-1VR Dimensions

Below you will find the dimensions of the module. OceanServer also provides both mechanical drawings and IGES files as additional design resources. These files can be found on OceanServer's download page.

<http://www.ocean-server.com/download.html>

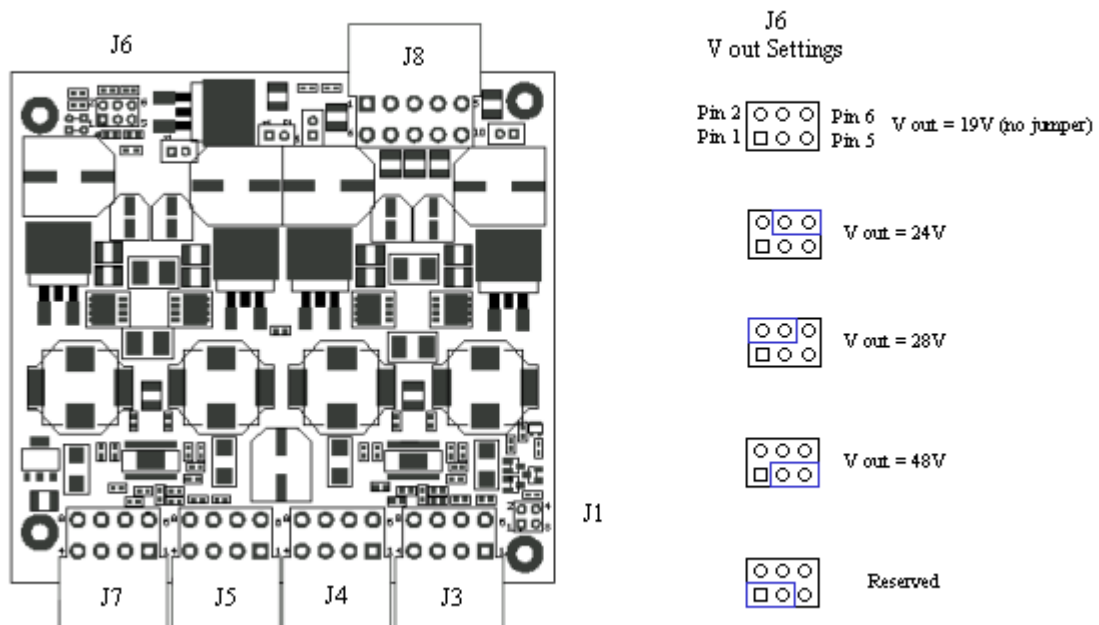


## 2.2 Connector Layout



## 2.3 Configuring Voltage Output on the DC2U-1VR

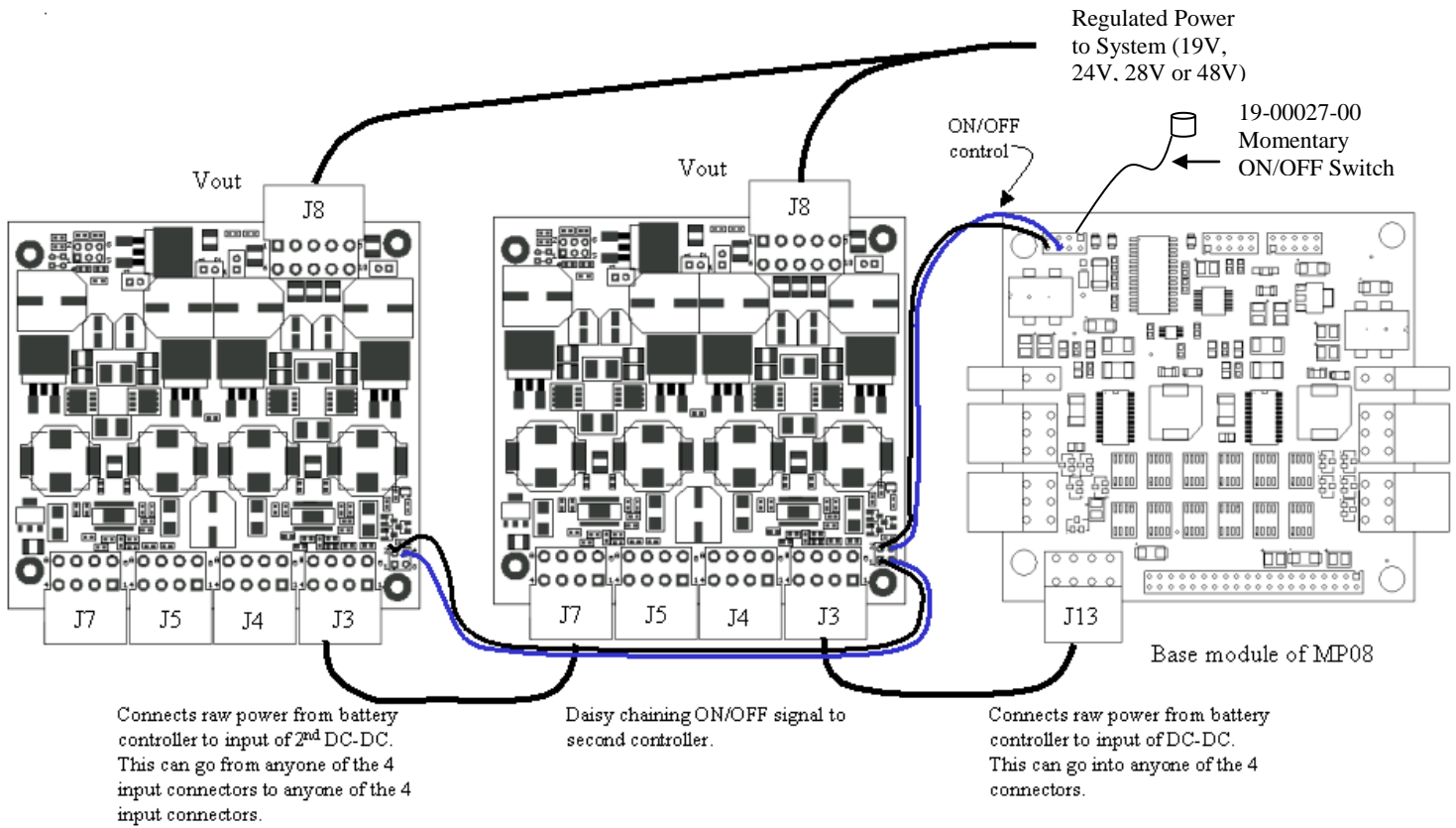
To set the DC2U-1VR voltage output, follow the J6 jumper settings below. Make sure all power is removed before changing the jumper setting.



## 2.4 DC2U-1VR Connections when using Multiple DC2U-1VR Modules

Multiple DC2U-1VR modules can be connected in parallel to provide more output power. The modules will dynamically current share based on a patent pending technology that will have the module with the best cooling, output the most power, up to the output limit of the module. Modules anywhere in the system will be running at about the same temperature independent of the cooling provided.

The DC2U-1VR has an output buffer for daisy chaining the ON/OFF# signal. It is an open drain output with a 4.99K pull-up.





## 2.5 Specifications

Parameter	Description	Value
Efficiency		Up to 96%
Ambient Temperature (see note 1)	Max Min	50C 0C (see note 2)
Vout	Configured by jumper (see section 2.3)	19V 24V 28V 48V
Vin (see note 3)	Max Min	Vout-1 up to 24V 12V
Power Output	Max Power out	250W
Output Voltage Tolerance	normal	+/-7%
Frequency		160KHz
Parallel operation	Same Vout	Yes
ON/OFF# input	Vil Vih	1.5V max 3.5V min
ON/OFF# output		Open Drain w/4.99K pull-up
Power Connector current rating	Per pin	7A
Power Mating connectors	8 pin 10 pin	Molex 39-01-2080 Molex 39-01-2100
Power Mating pins	18-24AWG 16AWG	Molex 44476-1112 Molex 44476-3112
Header Mating connectors	2 pin	Molex 50-57-9002
Header Mating pins	22-24AWG	Molex 16-02-1125

Note 1: Module is specified to work in 0-50C but it is up to the system designer to make sure that the components remain below their 125C junction rating and that the Aluminum Electrolytic capacitors remain below 105C.

Note 2: Contact OceanServer for applications beyond 0C-50C temperature range.

Note 3: Will support voltages as low as 9V, but at a de-rated power output.

# Customer Support

Send technical questions to: [support@ocean-server.com](mailto:support@ocean-server.com)

Or call us at 508-678-0550 during normal business hours.

## **Related Publications:**

Please visit our download page and download our latest Hardware User Guides and FAQs guide.

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