

Sealed Lead Acid Camera Battery

# RED ONE™ 14V BATTERY



This economical battery **lasts 2 ¾ hr.** with all accessories powered up on the RED ONE™ camera. It recharges in 3½ hours.

The battery insures full power until the RED ONE™ turns off at 11.5V. Included is a precision Voltmeter that tells remaining capacity. RED ONE™ current use is 9.5A peak. The sealed battery does not form a “memory”, it is a 25Ahr sealed lead acid approved to ship by air, **weight 36 pounds**, has internal fuse with spares and heavy-duty wiring. The case is a solid waterproof lifetime warrantee Pelican 1450. Expected lifetime of Battery under heavy daily use 2 years.

We recommend this be used with Lentequip’s Powersplitter

<http://lentequip.com/products/redsplitter.html> and that it be modified to 1=2, 3=4 at the 4 XLR input; or Keslow’s Magicbox (breakout box). Here a summary of Lithium batteries airplanes disasters compounded by the Federal Government: <http://cryptome.org/0001/phmsa100709.htm>

**Battery for the RED ONE™ \$1,000.00**

cable 10ft. 12 ga., 5XLR(M) at battery – 4 XLR(F) camera end \$ **150.00**

cable 10ft. 12 ga., 5XLR(M) at battery – RED ONE camera Lemo \$ **280.00**

**Charger** 110V, 13 pounds, 3-stage, designed for this battery’s specific chemistry.

Will not overcharge.

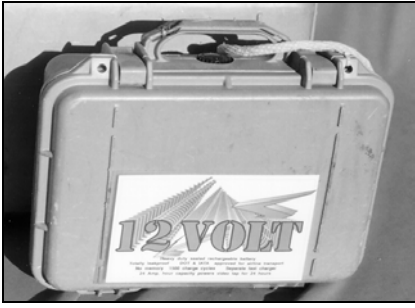
**Charger \$450.00**

Want to know too much: [http://wolfvid.com/datasheets/Batteries\\_and\\_chargers.pdf](http://wolfvid.com/datasheets/Batteries_and_chargers.pdf)

12/31/09 specs and prices may change

**Wolf Seeberg Video** Tel: (310) 822-4973 [www.wolfvid.com](http://www.wolfvid.com)





## 12V Battery 28Ahr

Fine to use on a **Red one** if you have a small on board battery for the higher voltage demanding accessories. This friendly priced battery is a sealed quick rechargeable package. It does not form a “memory” like Ni-Cads do, it is a sealed lead acid. Internal fuse, gold 4XLR, heavy-duty wiring, airline baggage handler proof Pelican 1400, approved to ship by air. **Charger not**

**included.** 22 pounds for 28Ahr.

**28 Ahr Battery \$ 400.00**

This is a sealed heavy-duty battery for professional applications. Legally air shippable, custom made to order. Available with very fast chargers. A safety fuse per outlet is internal to the case. Spares are provided. The wiring is 16 gauge Teflon that does not melt under 500° F. Connector: fused 4PIN XLR (Female) gold-plated Neutriks on outside of case. The gold will last twice as long as normal silver-plated connectors. This is especially important in sulfur smog polluted environments like L.A. or N.Y.C. or Cairo.

28 Ahr Battery will power a 15” LCD monitor for 5 hours. 28Ahr will power a RED ONE™ without accessories for 4 hours. With accessories, it draws 9A; count on 40minutes. Answer: Use two of these in parallel, or use 2<sup>nd</sup> on board Lithium for all accessories on separate Bauer Tap breakout. Or best: use the RED Battery, see above.

## 40Ahr Battery packages:



### 12V fiber camera cases type

We use heavy-duty Panasonic cells and very heavy-duty wiring and installation. The Neutrick connectors will provide 12 Amps continuously without getting warm. 12 and 16 gauge Teflon wiring is used. Hi-wattage inverters 12V to 110V AC sine or square wave can be used with these special heavy duty, deep discharge, long life

batteries to power AC equipment like video computers, large Macs or large HD color monitors. We specialize in custom packaging such as hooks for Magliner carts. Charger not included in price.

<b>28 Ahr</b> Battery in 1400 Pelican Case	<b>\$ 400.00</b>
<b>56 Ahr</b> with hook for Magliner, 14 ½, 8 ½, 9" approx. 45 pounds	<b>\$ 600.00</b>
<b>72 Ahr</b> with hook for Magliner, 19, 8 ½, 9" approx. 65 pounds	<b>\$ 700.00</b>
<b>96 Ahr</b> with hook for Magliner, 24, 8 ½, 9" approx. 85 pounds	<b>\$ 800.00</b>

Do these Battery Prices seem high if you consider that a 28 Ahr cell only costs about \$80.00 naked from Panasonic (and inferior ones are much cheaper at Sears). There is an awful lot of exacting labor involved in building these batteries with the proper foam and Hi-amperage wiring properly crimped and soldered to fuse-holders and gold connectors. Homebrew advice: Buy 'em from Sears or Costco, throw 'em in a milk crate, stuff the empty space with newspaper and save yourself some money. The Batteries from Costco can be returned and replaced free of charge, even if they have been abused.



### **12 Amp Hour Belt Battery**

For lightweight cameras, small monitors, clamshell recorders or DAT recorders, or general all round use in Kangaroo Pouch wrapped in soft foam with fuse and 4XLR Gold connector on 6ft Teflon cable. Drop-proof. (No charger included); needs max 4A charger. Weight 12 pounds **\$ 200.00**



### **Best Lead Acid made:**

These Cyclon BC Cell Hawker Gates sealed lead Acids cost approx 4 times of what the Panasonics cost. Advantage: very shock proof, can take extreme fast charge, can give extreme currents for long periods. Weight 90% more than other Lead Acid. They used circular spun starved lead grids also called absorbed glass mat, rather than plates as all other batteries. We make custom packs with these. You can get similar 12V ones at Costco or lots of car accessory supply stores. They have a

great warrantee. Not sure that they are the same call even though they are round. [http://www.batteryweb.com/pdf/Hawker Battery MSDS.pdf](http://www.batteryweb.com/pdf/Hawker_Battery_MSDS.pdf)

Care to learn about batteries rather than repeat the lies you heard on the set? <http://www.batteryuniversity.com/index.htm> or <http://www.howstuffworks.com/battery.htm>

We think Lithium Batteries are often dangerous. Here a summary of near disasters compounded by the Federal Government:

<http://cryptome.org/0001/phmsa100709.htm>

**Use a screwdriver,**



**Go to Jail!**

Safety guidelines: <http://safetravel.dot.gov/downloads.html>

## Chargers (call for used ones availability) 2009 prices

All are wired with 4XLR(F)

**.75 Amp**, Wall-wart for batteries over 2.5 Ahr. Size: 3½ x 2½ x 2¾" \$ 100.00

**3 Amp** lightweight small switching chargers (90-240V input)  
Plastic Chinese box \$ 95.00

**4 Amp** for medium sized battery over 12 Ahr.  
Size: 7½ x 6½ x 3" Weight: 3.5 lbs. \$ 180.00

Options: 110-220V switch for 2A and 4A additional \$ 75.00

**10Amp**, lightweight small switching chargers  
(90-240V input) Plastic Chinese box with fan \$ 150.00

**10Amp**, metal box switching charger,  
Size: 6x6x3" Weight: 5 lbs. (pictured below left) \$ 250.00

**20Amp**. metal box switching charger,  
Size: 6x12x3" Weight: 10 lbs ( not pictured) \$ 380.00

2009 prices, prices and specs change.

**Option** 220V version for 10A and 20A metal box add 10% price (and extra delivery time)



10A switching charger (little heat) 4A linear charger



**20A** for 3 batteries simultaneous charging (3x 4XLR)  
90-240V 12 pounds , wired \$ 500.00

Check: <http://www.xantrex.com/web/id/185/p/1/pt/7/product.asp>

### FAST CHARGER FEATURES:

All the chargers above provide a 3 stage intelligent fast charging method: Gel-Cells are much slower to recharge than our sealed Lead acid and are a lot more expensive. These chargers recharge the battery as fast as possible, while sensing the response of the battery and never overcharging it. These chargers are safe and protected and will not ruin the Battery. Charger is separate in its own Pelican Case (extra cost). Usually you charge at a different place than you use the battery so there is no sense to keep chargers with battery. The oldie but goodie heavy chargers get extremely hot and need air circulation for maximum output.

## Operating Instructions



### For 3A and 10A (plastic box) Lead-Acid Battery Charger

1. Connect battery to charger, **first**
2. Adjust AC switch (115V-230V).
3. Plug AC in, **last**.
4. Charge 12V Lead-Acid batteries, only.
5. Next Battery: make sure to unplug AC cable for 10 sec. to reset logic.

(Yes the Chinese make it that complicated.)

#### Technical Specifications

Input: 100-240 Switchable Vac 50-60Hz Output voltage: 13.8V dc Efficiency: > 85%

#### 3-Stage Charge Mode

Stage 1: Current, 10.0 ± 0.5A

Stage 2: Voltage, 14.7V ± 0.3V

Stage 3: Floating Voltage, 13.8V ± 0.25V

Cut-off current (Stage 2-3): 1.0 ± .2A

Charging time: 3.7 Hrs. for 26Ahr Max Output Power: 150W Ripple and noise: Lower than 300mV

#### Protection:

1. Over current protection
2. Over voltage protection
3. Short circuit protection
4. Battery reverse connection protection

**LED: Red = Charging**

**LED: Green = Finish or stand-by**

Operation temperature: 0~+40°C

Operation humidity: 20% to 90%

Storage temperature: -41~71°C

Storage humidity: 10% to 95%

**Caution: Do not plug this charger into an inverter powered by a battery!!  
It might break the charger.**

The Charger is designed for indoor use only. The Charger should be placed horizontally and work in well ventilated areas; avoid wetness and keep it away from inflammable or explosive goods. Don't cover the Smart Charger when charging; ambient temperature shall not be more than 40°C. Don't try to disassemble the Smart Charger. High voltage inside – danger! No user serviceable parts.

To **calculate maximum charger capacity** for longest battery life:

Divide the battery capacity by 3. Sample: 28A Batt : 3 = 8A for charger maximum. You can use a 10A charger but you will reduce the Battery lifetime by maybe 10% due to heavy charging currents that strain the battery chemistry. If you use the 20 A charger you will charge the Battery in approx. 1.5 hours but reduce the lifetime by 50%. The manufacturer claims 1500 recharges, reality says about 200 for normal charging and use. Very few of these Batteries last more than 6 years, no matter if you use them or not.



**Safety Cut off:** some older equipment, when running on batteries, does not disconnect from these batteries at 10.8 Volts. We have 10A and 60A cut offs that will save your battery from damage if you need them. Never overdischarge 12V Lead Acid type batteries lower than 10.8 volts, you will seriously reduce batteries lifetime. Take a battery down to 0 Volts and you may as well junk it. The same is true for

NiCads and NiMHd and Lithiums. The term “deep discharge” is a marketing slogan.

## 12V Power Supply or UPS 110V-12V 25A switching

These are really cheap lightweight power supplies to run your camera with. They are well constructed and sit on the floor next to camera (some have fans).

With multiple 4XLR outlets individually fused #3AG fuses as in

<http://www.astroncorp.com/showpage.asp?p=4>

Used but in great shape (for the labor of putting in all the 4 Pins, the power supply is free. Fan only comes on when necessary. Hardwired 12 Ga. soft copper cable to connect to battery to make a 12V UPS (Uninterruptible power supply) perfect for motion picture sound and video and other mobile use.

Used approx \$ 500.00



SS-30 12V 30 A front



back, custom whisper fan

regulated DC power supplies

<http://www.trcelectronics.com/Meanwell/rs-100-12.shtml>

<http://www.mpja.com/prodinfo.asp?number=16020+PS>

Sine wave inverters

<http://www.invertersrus.com/puresinewaveinverters.html>

or check this computer based safe discharge system – to keep track of many batteries:

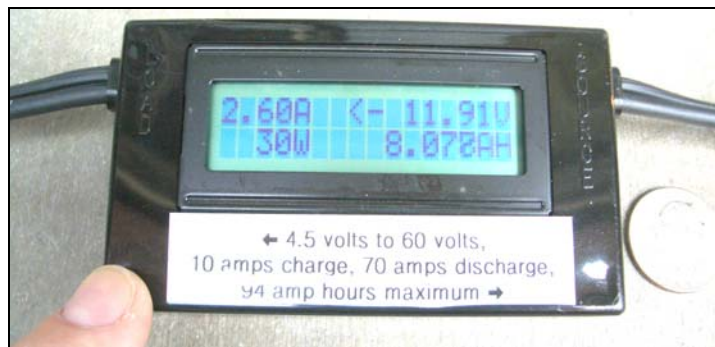
<http://www.westmountainradio.com/CBA.htm>

=====

## BATTERY WATCHER:

Want to know how many Amps or Ahr your gear is drawing or the charger is reinserting or the **state of your battery**? Check this extremely cool and useful little plastic box:

[http://wolfvid.com/datasheets/Battery\\_watcher.pdf](http://wolfvid.com/datasheets/Battery_watcher.pdf)



## 12V Batteries we use are made by Panasonic for good reason:

Below excerpts from the manufacturers description with comments:

**High quality and reliability:** This is a sealed lead acid battery with a starved electrolyte with a stable reliable capacity. It has no memory, Ni-Cads do. No reconditioning necessary. There is no "liquid " inside.

**Safe to airship: DOT & IATA approval:** The manufacturer had these sealed batteries approved by DOT and IATA for air shipment. They are considered as safe as dry batteries by these government agencies since 1990.

All of Panasonic lead acid batteries are unregulated by DOT for transportation by truck, rail, ocean and air transportation because they meet the requirements of 49 CFR 173.159 (d) and Special Provision – "A67" as promulgated by the International Air Transportation Association (IATA) and the International Civil Aviation Organization (ICAO). They also meet the Vibration and Pressure Differential Tests of the International Maritime Dangerous Goods (IMDG) regulations.

<http://www.panasonic.com/industrial/battery/oem/trans/index.html#downloads>

[http://www.panasonic.com/industrial/battery/oem/images/pdf/Panasonic\\_VRLA\\_LC-X1228P\\_LC-X1228AP.pdf](http://www.panasonic.com/industrial/battery/oem/images/pdf/Panasonic_VRLA_LC-X1228P_LC-X1228AP.pdf)

**Leak proof design:** This sealed battery uses an absorbed, dry electrolyte system. This sealed battery will not leak and can be used and charged in any position.

**Exceptional deep discharge recovery:** The batteries have exceptional deep discharge recovery designed in. (we don't believe this manufacturer or any others claim in this regard)

**Maintenance-free operation:** The battery is totally sealed, and needs only charging for maintenance.

**No gas generation:** There is no corrosive or dangerous gas generation.

**High power density:** These batteries are the smallest and lightest for their capacity for Lead Acid types. Difference between this and other similar types is minimal.

**Superior LCR technology:** This battery is a true lead-calcium rechargeable (LCR) Cell. This is not a Gel-Cell. Gel-cells cannot be charged rapidly and have no true indication of state of charge. Any charger will in time damage a gel-cell because of this. This is not a Ni-Cad. Ni-Cads cannot deliver heavy currents like this. Their cycle life is shorter. They cost a lot more.

**Custom "initialization":** Our batteries have been "formed" by us. It will perform right up to factory specs the first time. All Lead acid batteries have a "run in" period. We have a special charge-discharge routine that gets the batteries up to full spec the first time you use it. You can also leave the new battery on a good charger for 72 hours to achieve similar result.

**Shock proof:** Battery will withstand a 3 ft. drop without a case. The waterproof Pelican Case and the shock-absorbing foam lining make this battery "combat proof". I bet you could drop it from 20 feet in the pelican onto cement and nothing would happen. The Batteries from Sears etc. don't like shock at all, nor are they sealed.

[http://www.panasonic.com/industrial/battery/oem/images/pdf/VRLA\\_LC-MSDS\\_W\\_SUPPL.pdf](http://www.panasonic.com/industrial/battery/oem/images/pdf/VRLA_LC-MSDS_W_SUPPL.pdf)

<http://www.panasonic.com/industrial/battery/oem/chem/seal/index.html#data>

**Fuse:** A safety fuse for all Batteries is internal to the case. Spares are provided. Connector: 4PIN XLR (Female) gold plated. PIN 1=2 Pin 3=4 on large capacity Batts only. Each outlet has its own fuse. We use heavy-duty cables that are Teflon insulated and withstand 400 degree F heat.

Also we recommend "the beer-can battery" a sealed Car battery sold by Costco,

<http://www.optimabatteries.com/home.php>

approx 4x the price, Costco will replace it anytime no questions asked for 24 month. What a warrantee!! Other car accessory places carry it too.



We have some used pre-wired Battery cases for 24Ahr and up reasonable sale. Call us.

## Cheap alternative:

OK batteries (for shorter term use) and slow chargers are available for very low prices at:

<http://www.powerportstore.com/DC%20Prod-AR.htm#Top%20of%20DC%20Power>

be careful of no country of origin Lithiums, they last only a short time

<http://www.all-battery.com/alarmsecurityandmeter.aspx>

All round source for Batts, chargers, solar etc:

<http://www.aboutus.org/PowerPortStore.com>

<http://www.powerportstore.com/> cheap source of packaged batts.

Lithiums not too expensive (I have no experience with these: Korean and Japanese rechargables have a much better reputation than Chinese):

<http://buddipole.com/portablepower.html>

have separate charging connectors for special balanced fast charging (big hassle)



Good info:

[http://www.solarnavigator.net/battery\\_charging.htm](http://www.solarnavigator.net/battery_charging.htm)

Educational FAQ:

<http://www.batterystuff.com/knowledge-base/index.php?action=category&id=7>

## 12 Volt Minder UPG 71730



Low Voltage Warning Device for 12 volt battery systems. Prevent low or dead batteries by installing Volt Minder which has both LCD voltage read out and **audible alarm**. Customer adjustable low voltage setting, with a range of 10.5 to 13.8 volts, and audible on and off switch. Automatically monitors charging system and detects battery loads. \$ 30 with cigarette lighter adapter cable. very accurate voltmeter too!

<http://www.batterystuff.com/battery-products/UPGvoltminder.html>

## Comparison-shopping:

	NiMH Bauer	Price	NiMH Lentequip	Price	Lead Acid W. Seeberg	Price	Lead Acid RED ONE	Price	Lithium House of power	Price
Battery	VCLX/2 20Ahr	1,590.00	LB-13/26 28Ah	\$1595.00	28 Ahr in Pelican	400.00	25 Ahr	800.00	19 Ahr	Incl.
V	14/24		12.5		12		14		16?	
Batt weight	15		14		22		40		7.5	
Charger	VCLX/2 3 hr	995.00	<a href="#">QC-4X</a> 3hr - 2 batts	\$1395.00	8 hour	95.00	3.5 hr	650.00	2.5 hr	Incl.
Charger Cable	CA-CCX	349.00	Incl.		Incl.		Incl.			Incl.
RED ONE™ Cable	no		no		no		no		Incl.	Incl.
Total		2,950.00		3000.00		495.00		1450.00		2,928.00
Discounted	Who needs 2 batt in one?	2,430.00	With multiple Batts.		Why buy? Build it yourself!					

### Anton Bauer (2009)



A 20+40 Ahr **NiMH battery**. The CINE-VCLX/2 Battery is a 280 watt hour (280 w/hr:14V=20 Ahr) dual simultaneous voltage output 14.4/28v output. (There are actually 2 batts in one box. Who needs 24V?)

Dimensions: 9.69" x 5.53" x 6.00", Weight: 14.85 lbs (Lead Acid for the same capacity weighs 20 pounds)

The CINE-VCLX/2 Charger is specially designed for the CineVCLX/2 battery 10A @14V. Charge time: Approx 3 hours (that's fast!!) Dimensions: 8.48" x 7.74" x 2.43" Weight: 2.5 lbs.

<http://www.antonbauer.com/Products/Categories/Cine>

[http://www.bhphotovideo.com/c/product/558937-REG/Anton\\_Bauer\\_CINE\\_VCLX\\_2\\_BATTERY\\_CINE\\_VCLX\\_2\\_Dual\\_Voltage.html](http://www.bhphotovideo.com/c/product/558937-REG/Anton_Bauer_CINE_VCLX_2_BATTERY_CINE_VCLX_2_Dual_Voltage.html)

Anton Bauer also has a 560Whr (40 Ahr) dual NiMH Battery: CINE VCLX CA Dual Voltage Battery for \$ 2375.00 + Charger \$ 1000 = 3300



**NiMh by Lentequip battery:** 13.2V (28Ah) 11 cell Weight: 14lbs  
Price: \$1595.00

**Charger:** [QC-4X](#) Recharge time: 3hrs, 100-260V, 50-60Hz  
Autoselecting, charges 2 batteries at the same time. Price:  
\$1395.00 Package: \$ 2980.

<http://www.lentequip.com/products/blockbatteries.html>



### House of Power

**Lithium** Battery cost much more than sealed Lead Acid or NiMHD, can be charged faster, don't form a memory, and are 1/3rd the weight for same Amp hour ratings. sells a 16V 19Ahr, 7.5 pound, with charger and RED ONE™ cable for US \$2928.00.

- 2.5 Hour Charge Time (cautions apply).

[http://www.thehouseofpower.us/HOP\\_new\\_2009/HOP\\_home.html](http://www.thehouseofpower.us/HOP_new_2009/HOP_home.html)

## Synergistic Lunchbox Battery

Lithium, not to be air-shipped except by freight carrier. Have a new batt in summer 2009 for Red one, 4x Lithium cells by LG (brand named "VIPER") delivers 15V @ 50Ahr with controlled charge / discharge electronics (made in Canada) at every cell. Charger is 16.8V constant current. Recharges in 6 hours. Max discharge allowed, 10A. Synergistic Batteries, Inc. 5975 Providence Lane Cumming, GA 30040 Phone: (770) 886-6621 Fax: (770) 886-6522 Toll free 1-800-634-6000  
<http://www.synergisticbatteries.com/> not on their website as of late 2009.

## Switronics: V-Type HotSwap Adapter Plate

Part # GP-TS Input: DC 11-17v Size: 4.75" x 5.5" x 3.5" Weight: 1.6 lbs. The GP-TS Hotswap adapter mounts directly to the existing V-type plate on the camera and allows for continuous battery operation. You can easily remove the depleted battery while the leaving the new battery connected so that there is no down time, no RED ONE™ reboot time. It can provide up to 260wh at 6lbs.



[http://www.switronix.com/product\\_details.php?cmd=info&id=189](http://www.switronix.com/product_details.php?cmd=info&id=189)

A 13 Ahr V mount Batt, 190 Whr, 4 pounds:

[http://www.switronix.com/product\\_details.php?cmd=info&id=224](http://www.switronix.com/product_details.php?cmd=info&id=224)



**XP-L95RED** Capacity: 95wh (14.8v, 6.6Ah) Size: 3.8" x 5.87" x 2" Weight: 1.8 lbs.

4 Stage LED Power Gauge. Communicates with Red One Camera for % Data Highest capacity Lithium Ion battery pack that can be legally transported without restrictions

## IDX Lithium Batts: <http://www.idxtek.com/>



They have a 9 Ahr 136 Whr air shippable Li-Ion 2.7pounds

[http://www.idxtek.com/pdf/spec\\_sheet/elite.pdf](http://www.idxtek.com/pdf/spec_sheet/elite.pdf)

Good travel info for Lithium

[http://www.idxtek.com/support/air\\_travel.html#checkin](http://www.idxtek.com/support/air_travel.html#checkin)

There may be a way to put 2 in parallel onto the RED ONE™ Camera, call them.

## Comparison between NiMH, Lead Acid and Li-Ion Battery at Similar Energy Level (360 Wh)

Battery type	Weight	Volume	Energy Density by weight / size		Cost (\$/wh)
Sealed Lead Acid	10 kg	3270 cm <sup>3</sup>	36 wh/kg	0.11 wh/cm <sup>3</sup>	\$0.19 /wh
Nikel Metal Hydride (36V 10 A)	5.5 kg	2430 cm <sup>3</sup>	65 wh/kg	0.15 wh/cm <sup>3</sup>	\$1.00 / wh
Lithium Ion Polymer (8Ahr)	1.75 kg	1340 cm <sup>3</sup>	170 wh/kg	0.23 wh/cm <sup>3</sup>	\$1.25 /wh
Lithium Ion Polymer (10Ahr)	2.15 kg	1613 cm <sup>3</sup>	170 wh/kg	0.23 wh/cm <sup>3</sup>	\$1.20 /wh

The quality of the Batteries referred to above may vary.

## RED ONE™ Powering Dilemma

The only small limited lifetime Lithium battery that gives a true state of charge indication in the viewfinder is made and sold for big bucks by RED ONE™. The alternative NiMHd block batteries from Bauer or Lentequip etc are expensive and have no state of charge indication in viewfinder.

### Using the standard 12V 28Ahr Lead Acid battery:

The RED ONE™ video camera while recording to HD, draws 5.5A with no accessories; that translates into 4-Hr use on a good, new 12V 28Ahr Lead Acid battery block (weight 22 pounds). Camera will shut off at 11.5V. The camera relies on heavy use of accessories that have to be powered by a second on board Lithium.

RED ONE™ current use: Basic recording 5.5A, cam tape 1.5A, RED monitor .7A, assistant 7" monitor .9A, FIZ 1A, FIZ in action 1.5A, video Tx 1A = approx. 9.0A continuous , 9.5A peak. Some assistant monitors of course cut off at 12.1V.

What helps? 12-Ga shorter battery leads with clean connectors. 4XLR wired 1=2, 3=4. New batteries.... But that's not enough...

If you draw 9A (like the RED ONE™) from a 12V 28Ahr Lead Acid battery: Right off the charger, the Battery Watcher at the battery 4XLR reads 13.6V. After 2 minutes under load, it reads 12.6V - after 40minutes, it reads 11.5V and the RED ONE™ shuts down.

The RED ONE™ sees only 11.5V at the end of an average 8ft 16 Ga cable. The Battery Watcher shows that only 8Ahr of the batteries' 28Ahr has been used. Curiously after 48 hours without a load, the voltage of the battery is back up to 12.6V = 80% of capacity a true indication. The heavy current takes down the voltage of the battery causing shut-off before the battery is actually "depleted." The momentary voltage under heavy load is not a true indication of batt capacity, yet that capacity cant be used The Batt Watchers AHR withdraws indicator and voltmeter lets you learn when the camera will shut off. So you are carrying around 80% of battery capacity that never gets used. What a waste.

### **Solution: (See top of document)**

**14V 25Ahr** battery. This is a custom battery with custom charger that actually pours all its energy into the camera down to the 11.5 camera cut off. It takes **2 hr and 45 minutes** for the RED ONE™ **with all accessories** powered up (9A) to deplete this battery. This battery delivers its full 25 Ahr. The special cells are made to handle this heavy use and will probably last 2 years under these conditions. This is an economical battery and charger, of course there is a weight penalty compared to very expensive Lithium.

### **Other solutions: NiMHd batteries at 14.4V.**

12 cells (11 seem to be not enough) NiMHd batteries work well (not sure of the actual time they can power a RED ONE™) . This is an expensive but lighter weight battery needing a complex charger.

**Other solutions: Li**

Some use dual lithium batteries, or large Lilon ones 3.5V x 5 = 17.5V [very expensive]. A list of dangerous incidents centered on Lithium Batteries can be found on the FAA Web site at

[http://www.faa.gov/about/office\\_org/headquarters\\_offices/ash/ash\\_programs/hazmat/aircarrier\\_info/media/Battery\\_incident\\_chart.pdf](http://www.faa.gov/about/office_org/headquarters_offices/ash/ash_programs/hazmat/aircarrier_info/media/Battery_incident_chart.pdf).

And now for the total **disaster**: Sony F35 draws 12A with no accessories.

**Specmanship:**

And don't buy batteries from manufacturers that will not publish specific technical specs. Ask for runtimes of battery with your camera with all accessories!! Check the times yourself!

**Hints:**

Use short (8ft or less) and thick (at least 12ga) Camera power cables. Connectors have to be clean and should not warm up. Found some nice flexible "speaker cable" 12 ga at Guitar center west LA.

**Lithum Batt on airplanes:**

<http://www.idxtek.com/lithium-ion-transportation>  
<http://www.antonbauer.com/Support/TransportationInformation>

You are looking at [http://wolfvid.com/datasheets/Batteries\\_and\\_chargers.pdf](http://wolfvid.com/datasheets/Batteries_and_chargers.pdf)

12/25/2010 Prices + specs change rapidly.



**Wolf Seeberg** (310) 822-4973 [www.wolfvid.com](http://www.wolfvid.com)