

THALES NAVIGATION	Marketing & Technical Tips		
Z-Max	N° 2006/02	03/03/06	By : Denis BERNARD
Z-Max power module			

1 - Introduction :

The primary power source for the Z-Max is the power module



Inside the Power Module are rechargeable lithium Ion battery cells :

- Capacity is 8.8 amp-hours.
- Voltage is 7.2 Volts.
- Battery life is app. 13 hours.
- No memory effect : can be recharged up to 1000 times.

2 – Basic tests:

2.1 - Battery life :

The power module has a pushbutton & LED indicators to provide a quick indication of the percentage of battery time remaining :

- Each of the four lights represents about 25% of battery life.
- Four green lights represents a battery fully charged (100%).
- One red light represents less than 25%.



2.2 – Charging :

The charging of a Power Module from a fully discharged state takes about 5 hours.



The status lights on the power module indicate the following :

- Yellow : Standby
- Red : Charging
- Green : Charged
- Blinking Red : Error

3 - Conditioning :

Conditioning should be done periodically to calibrate the Power Module and restore the charge level accuracy.

We recommend that the Power Module be calibrated every 20 charge cycles, or about once a month, whichever comes first.

Please refer to User Manual – page 21/22

4 – Z-Max battery life :

Measured on a Z-Max in RTK mode (rover), with a 8.8Ah power module fully charged :
13.8 hours.

Temperature		Relative battery life versus temperature
Celsius	Fahrenheit	
+60°	140°	85%
+45°	113°	95%
+25°	77°	100%
-10°	14°	70%

5 – Z-Max Power drain

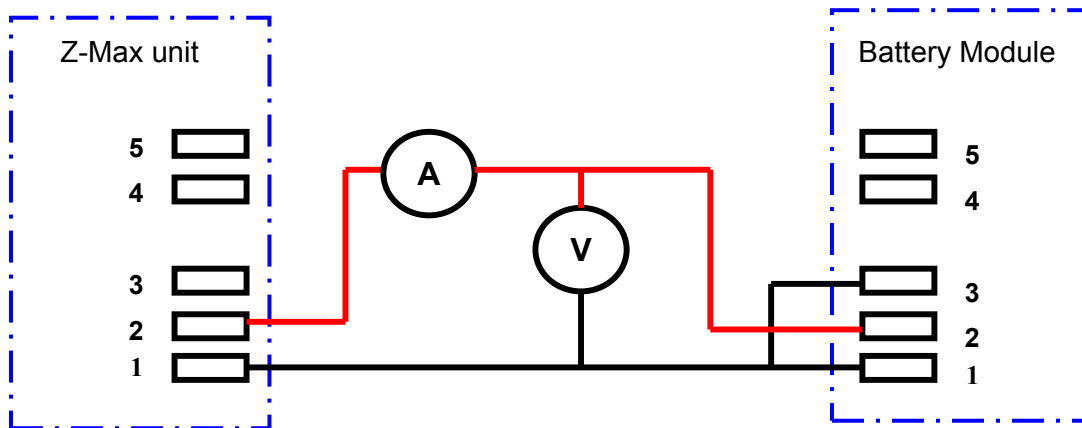
Measured on an external 12V power supply connected to the power port :

Pin 1 : ground

Pin 2 : external power supply input (9 to 28V DC)

Mode	Display	Current drain (mA)	Power (W)
RTK rover with T.N. UHF Rx	OFF	430	5.15
	ON	540	6.5
Static	OFF	385	4.6
	ON	470	4.65

6 – How to test a Power Module



Voltage :

- End of charge : 7.9V to 8.0V
- Nominal : 7.2V
- Discharged : 6.45 V (automatic limit of use on Z-max side)

Current : 0,6 to 0,7Amp

7 – How to store a Power Module :

The Power Module includes an automatic battery charger module having its own power drain, even during the storage of a module alone.

The storage residual current is around 1mA, that gives 0.7 Ah per month of auto-discharge.

- -10°C to 20°C (14°F to 70°F) is the ideal storage temperature
- Before storing an unused battery module, charge it at least at 50% ..
- If a module has been stored for more than 2 months, check the battery status, and charge it if necessary.
- If a power module is stored a too long time without being reloaded, the battery will drop under the minimum voltage level necessary to make the recharge possible and it will be necessary to send the unit back to the factory.

8- Li-Ion internal battery module specifications :

- Manufacturer : Emerging Power Inc. (USA) / Saehan Enertech Inc. (Korea)
- Model : Rechargeable LI-Ion Smart Battery pack Li42SX-88A / D160A (8.8Ah – 7.4V)
- Capacity : 8,6 Ah minimum, 8.8 Ah standard at 25°C.
- Voltage 7.4V (charging 8.4 +/- 0.5V)
- Cell configuration : 2 packs of 4 cells (3.7V – 2.2 Ah each)
- Discharge cutoff voltage : 6.0V