



What is a "Twicell" Nickel-Metal Hydride Battery?

It's a secondary battery capable of charging and discharging that can save twice as much energy as an ordinary CADNICA battery.

Twicell uses hydrogen

absorbing alloys in its negative electrode (anode) and nickel oxide in its positive electrode (cathode). Since its release, the 1st in the world in October 1990, the "Twicell" sealed Nickel-Metal Hydride Battery has developed a strong reputation for high capacity, high performance and high quality. In November 1996, Sanyo was the 1st manufactures in the world to achieve 300 million cells accumulatively.

The HR-4/3AU (3,500mAh) is a new (volumetric energy density: 300Wh/l), first marketed in May 1996, that well exceeds the volumetric energy density of lithium-ion batteries. Sanyo plans to release another Twicell battery of even higher capacity (volumetric energy density: 340Wh/l) in the end of 1997. In addition, the new Twicell HR-4/3FAU(4,000mAh), released in September 1996, is specially designed for notebook computers, and has the same diameter (18mm) as the lithium-ion UR18650 battery.

Features

- High volumetric energy density well exceeding that of Lithium-ion batteries. (HR-4/3AU and HR-4/3FAU)
- Double capacity of standard CADNICA batteries.
- Can be used over and over (more than 500 times with a specific charger).
- 1.2-1.6 hour quick charge with a specific charger.
- Compatible with Nickel-Cadmium batteries (almost same discharge voltage).
- Produced under a ISO9002 certified quality control system .

Battery lineup

Nickel-Metal Hydride Batteries (Specifications) Cylindrical type

Model	Voltage (V)	Typical capacity * ₁ (mAh)	Min. capacity * ₂ (mAh)	Ext. dimensions (Incl. tube) (mm)		Weight (approx. g) * ₃
				Dia	Hgt	
HR-AAAU	1.2	720	650	10.5	44.5	13
HR-5/4AAAU	1.2	770	700	10.5	50.0	15
HR-5/3AAAU	1.2	1000	920	10.5	67.0	19
HR-AAC	1.2	1100	950	14.2	50.0	27
HR-AAUL	1.2	1450	1300	14.2	49.0	27
HR-AAU	1.2	1500	1400	14.2	50.0	27
HR-4/5AUC	1.2	1700	1550	17.0	43.0	35
HR-4/5AU	1.2	1850	1700	17.0	43.0	35
HR-AU	1.2	2700	2450	17.0	50.0	40
HR-4/3AU	1.2	3800	3500	17.0	67.0	55
		4000	3600			
HR-4/3FAU	1.2	4000	3600	18.0	67.0	62
		4500	4100			
HR-SC	1.2	2200	2000	23.0	43.0	59

*₁: Average capacity when a single cell is discharged at 0.2C after being charged at 0.1C for 16 hours.

*₂: Minimum capacity when a single cell is discharged at 0.2C after being charged at 0.1C for 16 hours.

*₃: Including tube.

Rectangular type

Model	Voltage (V)	Typical capacity * ₁ (mAh)	Minimum capacity * ₂ (mAh)	External dimensions (Incl. tube) (mm)			Weight (approx. g) * ₃
				Width	Height	Depth	
HF-C1U	1.2	600	550	17.0	35.5	6.1	12
HF-B1U	1.2	880	810	17.0	48.0	6.1	18
HF-B2U	1.2	950	870	17.0	48.0	8.3	24
HF-A1U	1.2	1350	1200	17.0	67.0	6.1	26

*₁: Average capacity when a single cell is discharged at 0.2C after being charged at 0.1C for 16 hours.

*₂: Minimum capacity when a single cell is discharged at 0.2C after being charged at 0.1C for 16 hours.

*₃: Including tube.

Nickel-Metal Hydride Batteries

Model	Voltage (V)	Typical capacity * ₁ (mAh)	Minimum capacity * ₂ (mAh)	External dimensions (Incl. tube) (mm)		Weight (approx. g) * ₃
				Dia	Hgt	
HR-3U	1.2	1450	1350	14.2	50.0	27
HR-4U	1.2	650	600	10.5	44.0	13

*₁: Average capacity when a single cell is discharged at 0.2C after being charged at 0.1C for 16 hours.

*₂: Minimum capacity when a single cell is discharged at 0.2C after being charged at 0.1C for 16 hours.

*₃: Including tube.