Use of Standard Non-rechargeable Batteries versus Rechargeable Batteries in OWL Test Equipment

July 21, 2010

Standard Batteries Versus Re-chargeable Batteries

OPTION 1 - USE STANDARD NON-RECHARGEABLE BATTERIES (RECOMMENDED)

Non-rechargable batteries are highly recommended over rechargeable batteries for several compelling reasons:

Long battery life. A standard non-rechargeable battery has several times as much total power as a rechargeable. For example, a device like the OWL FO-4B optical power meter typically lasts for 100 hours (continuous) on a fresh non-rechargeable battery, but would last only a fraction of the time on a re-chargeable battery. When put into perspective, 100 hours is a long time for a field testing device. In this case, two testing hours per week is nearly a whole year on a single non-rechargeable battery. Plus, many field testers like the FO-4B have power saving features designed to increase battery life.

Re-chargeable battery "memory". Keep in mind that most 9-volt re-chargeable batteries are NiCd and NiMH, which have a tendency to get "tired" and lose their charging capacity after too many charge cycles; i.e. the more the battery gets charged, the shorter its overall life. A device with a "tired" battery would need to be plugged into the nearest power outlet to work, defeating the purpose of portability of hand-held field testers.

Remembering to charge the battery. The user also has to remember to keep the battery charged. If a device with a rechargeable battery is not charged prior to testing and the device runs out of power during testing, the device would have to be plugged into the nearest power outlet for operation, again defeating the purpose of portability.

Bulky transformers. Re-chargeable batteries require battery chargers that can be bulky, heavy, and otherwise cumbersome to carry around everywhere. Keeping one or more spare non-rechargeable batteries takes up less space and weighs much less, and also means that the device will never be tethered to a wall outlet.

Better availability. The standard 9-volt battery format used in OWL equipment can be purchased off-the-shelf nearly anywhere. Re-chargeables are harder to find, usually only found at electronics retail stores or online.

Lower overall cost. Not only do re-chargeable batteries retail for several dollars each, a compatible charger would also need to be purchased, which could cost 15 or more additional dollars. For that same price, you could purchase 20 or more standard batteries.

OPTION 2 - USE OFF-THE-SHELF RE-CHARGEABLE BATTERIES AND CHARGERS

However, if users still wish to use a re-chargeable battery in their OWL equipment, the battery must be purchased separately. Re-chargeable 9-volt batteries and compatible battery chargers are usually available at retail electronics stores or online.

As an option, users with proper expertise could make their own transformer. See Table 1 - TRANSFORMER SPECIFICATIONS for more information.

	Connector	For products:	Pinout
	1.3mm	Fiber OWL optical power meters WaveSource light sources Dual OWL light sources Laser OWL light sources	 Output: 9VDC 200mA
	2.1mm	Micro OWL 2 optical power meters WaveTester optical power meters ZOOM 2 optical power meters	

TABLE 1 - TRANSFORMER SPECIFICATIONS

OPTION 3 - PURCHASE A TRANSFORMER FROM OWL

Transformers are also available for purchase from OWL, although they are only available for the US power format. If outside the US, a power adapter would also be required to adapt this transformer to a particular country's power system. The power adapter, as well as the re-chargeable battery, would need to be purchased separately.

A Common Misconception

Perhaps the main reason that many users prefer re-chargeable batteries is that they unnecessarily fear that information stored in their hand-held device will be lost if the device runs out of battery power. While this may be true for some devices, OWL test equipment is designed to store information in permanent memory.

In other words, stored information will remain in the OWL device, even when the battery runs out of power. This includes not only stored measurements, but also reference levels, so the equipment won't have to be re-referenced if the device is powered off or the battery needs changing.

From this vantage point, standard non-rechargeable batteries are still the best option for use in OWL test equipment.

About Hand-held Test Equipment

OWL test equipment, like every other vendors' field test equipment, is hand-held because field test equipment needs to be portable. Being tethered to a wall with a power cord defeats the purpose of portability. As such, OWL test equipment uses the standard off-the-shelf 9-volt battery format, which is available worldwide.

Even though most OWL test equipment ships with standard non-rechargeable batteries, many OWL testers also include a charger port, in case the customer wishes to use their own re-chargeable 9-volt battery. Re-chargeable batteries and transformers must be purchased separately. Power transformers compatible with the US power system can also be purchased from OWL, if necessary.

Conclusion

So, if standard batteries are recommended, why are there still charger ports on OWL test equipment?

Charger ports are included on OWL test equipment to cover the requirements of bids and tenders written by non-technical sales and purchasing personnel who are not well-versed in battery technology. By dealing from the standpoint that "the customer is always right", rather than approaching the issue from a technical point of view, they fail to understand the advantages of using standard non-rechargeable batteries in field test equipment.