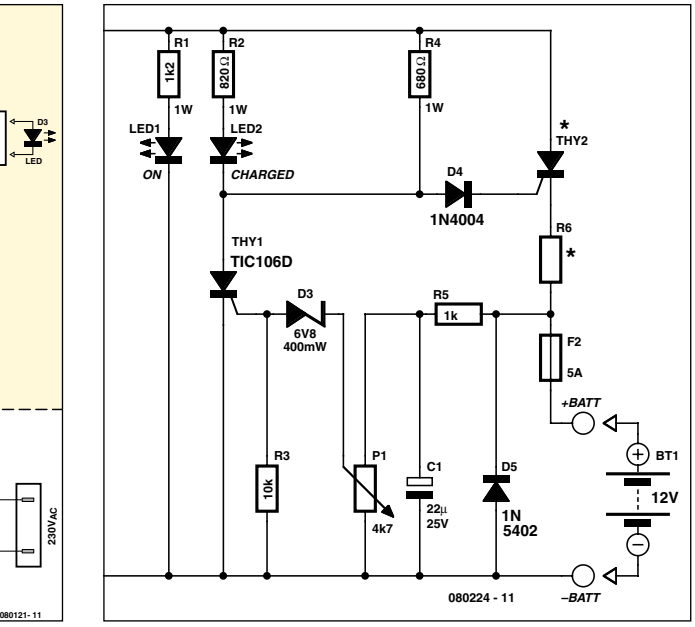
spindle, to give you up/down pulses for a counter on each axis. The easiest source of these is a computer mouse with a ball in it. These usually have two small wheels inside, each with an optical (infrared) rotary encoder fixed to them. There is usually a small circuit board in there, too, which translates the encoder signals to up/down pulses; you can use these signals coupled to an up/down counter with output suitable to drive a 7-segment display for each axis, such as the Intersil ICM7217A, a



4-digit BCD up/down counter. Use one on each axis. Hope that helps!

Steve Reynolds (UK)

Using the car battery charger with gel cells

Hi Jan — do you think your Automatic Car Battery Charger (July/August 2008, *Ed.*) can be used for charging gel-cell lead-acid batteries (and keeping them charged)?

Keith Vandross (South Africa)

In theory yes, Keith, after all, lead is lead…However, it's important to adjust the threshold voltage with P1 such that THY1 is off when the battery is not yet fully charged. THY1 should only switch on when the battery is fully charged, in order to block THY2.

Gel-cell batteries should be regarded as fully charged when the individual cell voltage at room temperature (20 °C) reaches approximately 2.45 V (range: 2.4–2.5 V) with normal charging. The individual cell voltage for trickle charging (continuous charging) is approximately 2.275 V (range: 2.25–2.3 V). The drops somewhat as the temperature rises.

MailBox Terms

- Publication of reader's correspondence is at the discretion of the Editor.
- Viewpoints expressed by correspondents are not necessarily those of the Editor or Publisher.
- Correspondence may be translated or edited for length, clarity and style.
- When replying to Mailbox correspondence, please quote Issue number.
- Please send your MailBox correspondence to:

editor@elektor.com or
Elektor, The Editor,
1000 Great West Road,
Brentford TW8 9HH, England.