Re: LCD Screens and freezing weather

Source: http://sci.tech−archive.net/Archive/sci.geo.satellite−nav/2007−12/msg00029.html

- *From*: miso@xxxxxxxxx
- *Date*: Mon, 3 Dec 2007 20:05:18 −0800 (PST)

On Dec 3, 12:17 pm, Richard Owlett <rowl...@xxxxxxxxxxxxx> wrote:

> m...@xxxxxxxxx wrote:
>
> > On Dec 3, 10:18 am, "Fred Hiltz" <n...@xxxxxxx> wrote:
> >
> > > George wrote:
> > >
> > > > Can I safely keep my LCD touch screen
> > > > GPS in my car in freezing
> > > > weather? I mean, after all, the "L" stands for
> > > > liquid.
> > >
> > > It is more a paste than a liquid. Of course everything freezes
> > > at
> > > some temperature. Google "LCD storage temperature" will
> > > find you
> > > typical ranges of −40 to +70 degrees C. Check your owner's
> > > manual.
> > >
> > > My GPSmap 60CS specifies no storage range, but an
> > > operating range
> > > of −15 to +70 C. I have used it as low as −25, but the screen
> > > has
> > > almost no contrast and of course the batteries do not last
> > > long. I
> > > keep it in an inside pocket and use an external antenna now.
> > > −−
> > > Fred Hiltz, fhiltz at yahoo dot com

> Generally when you design "personal" electronics, you design for an environment that can be tolerated by a person. Hence the LCD getting finicky in cold weather.
> [snip a case history]

> Pay attention that like humans "can survive" extremes at which the "can not operate". Consider skater falling thru ice whose body temperature is drastically reduced. He does not "function" at that temperature. BUT, if carefully warmed may resume normal function.
>
> *CAVEAT LECTOR* _ALL_ adjectives significant ;/

Consumer grade or even industrial grade electronics will degrade specifications for items that interface with humans. Chips can easily work at 125 deg C, but nobody designs displays to be read at those temperatures.

The LCDs used in outdoor electronics have heaters. Even then, I doubt they are designed to work at the lower limits of the chips (−55 deg C)

I've designed display driver chips, so I'm not pulling this stuff out of the ether.
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