

Re: RS-232 levels to computer

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2006-03/msg01501.html>

- *From:* Jim Thompson <To-Email-Use-The-Envelope-Icon@xxxxxxxxxxxxxxxx>
 - *Date:* Sun, 12 Mar 2006 09:28:31 -0700
-

On Sun, 12 Mar 2006 02:40:14 GMT, Fred Bloggs <nospam@xxxxxxxx> wrote:

budgie wrote:

On Sat, 11 Mar 2006 13:45:15 GMT, Fred Bloggs <nospam@xxxxxxxx> wrote:

Spehro Pefhany wrote:

On Sat, 11 Mar 2006 19:45:27 +0800, the renowned budgie <me@xxxxxxxx> wrote:

On Sat, 11 Mar 2006 05:37:04 GMT, Mac <foo@xxxxxxx> wrote:

On Fri, 10 Mar 2006 19:10:42 -0800, Richard Henry wrote:

Re: RS-232 levels to computer

drive
a
NPN
so
the
the
signal
is
inverted
and
use
+12
on
the
collector
to
get
the
level.
The
lowest
voltage
out
of
the
NPN
will
be
near
zero.
I
am
using
this
for
just
collecting
some
data
sent
over
a
small
cable
length
and
I
don't
plan
on
this

Re: RS-232 levels to computer

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being
part
of
a
design.

The
question
is
in
regards
to
the
computer
RS-232
input,
would
the
near
zero
voltage
be
taken
as
by
the
com
port
as
the
correct
level?

Don't
count
on
it.
However,
many
poorly-designed,
non-spec-compliant
interfaces
will
work
with
those
voltages.

Sometimes.

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Intermittently.

Many
well-designed
ones will
work, too.
It's just not
guaranteed
by the
spec to
work.

You too are
misunderstanding the spec.
The spec mandates
minimum receiver
threshold performance. Any
receiver that can reliably
respond *inside* those
 $\pm 3V$ specified minima is
compliant.

Indeed, one could argue that practice in the
PC and other industries,
with their huge installed base, trumps
whatever 232 spec is current,
and any new implementation that acted only
minimally compliant with
the spec (eg. thresholds at $\pm 2.6V$ nominal)
would be 'broken'.

One major advantage of the way the
receivers generally work** is that
the output state is known for a disconnected
cable.

Current practice, in effect, imposes *tighter*
constraints than the
standard. This is not an uncommon situation.

** does anyone know of a commercial
RS-232 receiver IC that *doesn't*
have a threshold in the $+500mV \sim +2.5V$
range?

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Best regards,
Spehro Pefhany

That's why the damned things act up when the peripheral and computer are plugged into different line circuits with significant voltage difference between GNDs- not enough noise margin. For high reliability, the bipolar drive should be used, and it should be as large as possible, +/-12V if feasible.

Crikey! Back in 1969 my degree honours project had us running RS232 at 9600 baud between two campus buildings that were several hundred metres apart. I shudder to think what the data ground line was carrying.

Was that possibly synchronous?

1969 would still be back in the days of the $\pm 12V$ signaling.

However I have seen a 60V difference between two GenRad mid-rise buildings in Phoenix. I opted for transformers and Manchester.

...Jim Thompson

—
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It's what you learn, after you know it all, that counts.