Simple and Cheap way to add a Printer to your project

csn_a2_printer_manual.pdf thermal_printer_2.pdf

Electronic component sites and online tat-bazaars (ebay, Banggood etc…) have vendors selling mass-produced and cheap thermal printers.

These use thermal paper (not thermal transfer) so like used in credit card machines in restaurants. To find the one detailed here, search for

```
GOOJPRT QR203 58mm Mini Embedded Receipt Thermal Paper Printer TTL for
EML203
```

By cheap I mean around £14 or less! These are small printers intended for panel mounting and code compatible with APS panel printers like the ELM203-CH. This means they can produce a variety of character heights/widths, bar-codes and even dump graphics for company logos etc. There seem to be a couple of models available but this is the one I had a play with:

The rear has three sockets, Left to right they are:

- Power, 5V to 9V @ 1.9A(!)
- +/-12V level RS232 serial interface.
- TTL level serial interface.

Pin-outs for both communications sockets are the same but for most users the socket on the right (TTL levels) is how interfacing will be achieved - it is possible to get this printer working with a single wire! The pin-out is as follows:

1 - GND (Leftmost pin) 2 - Tx (output) 3 - Rx (input) 4 - DSR (input) 5 - DTR (output)

I found you could ignore the DTR/DSR connections - purists might like to use them. If you aren't going to implement proper handshaking, be careful with the amount of data you send in one go - I can't find how big the buffer is so it might be a good idea to insert a small pause between transmissions if they are occurring rapidly.

In the attachments (top right) I have added the PDF for a different model - it is code compatible with this "GOOJPRT" (ignore the electrical connections section).

The thermal paper rolls are the standard 55mm wide till-roll type, available at about £10 for a pack of 20, so no shortage of media, but **Be warned** although they take a standard roll `width`, the media-bay has a small diameter so if you are buying standard till rolls, you'll need to manually remove paper until it fits in loosely. With my box of rolls, each has a diameter of about 55mm but I have to get it down to around 38mm to get it in. Although that seems a lot of waste, the remaining is still a lot of paper.

Please note the power requirements of this printer. Testing from a USB supply will probably give poor results - just a few marks on the paper and two flashes from the LED indicator. Thermal printing requires quite a bit of power and if the PSU can't deliver, you end up with a few pixels from the top

row of the text, a small (half) advance of the paper and then two flashes. In tests from a USB outlet I found I could print three or four characters but no more.
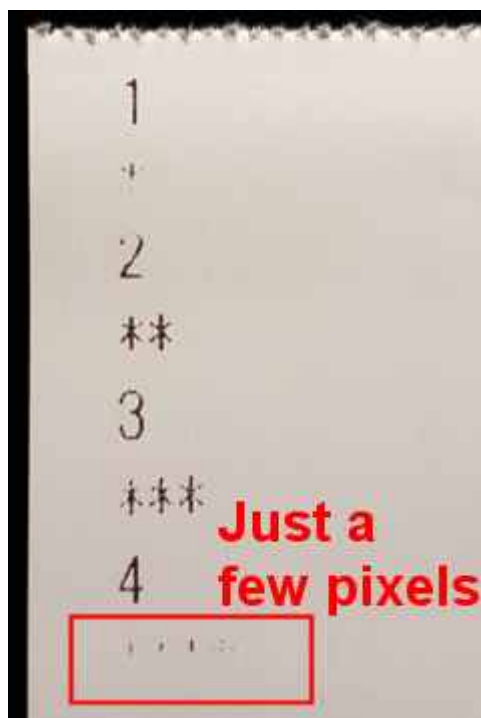
In conclusion, this is a nice addition to small embedded systems. It is limited in its scope but it is intended to be. It isn't particularly wide printing area (48mm) but will do for simple logging output etc. It needs a beefy PSU.