

PID_QAI_six

Funktion

This is part of the QAI detection MOT project. The PID(s) consists of two boards that fit inside two 19" 1HE casings. Essentially, it is six PIDs with fixed parameters and the option the discharge the integrator via TTL signal. Also there are monitor outputs present, as well as LEDs to show if the error signal vanishes. An output offset is also possible. P, I, D and the output offset can be turned on/off independently by a piano dipswitch.

So this is quite a special design. But if you also need \approx 6 PIDs with parameters that are fixed by the populated SMD parts, it might be better then manufacturing six single PIDs (e.g. PIDmareike).

Performance

The employed OPamps are probably not much faster than a few MHz.

The project is used in the QAI lab since middle 2020. So far it does what it is supposed to do.

Date

Start of the project: April 2020

Status

Works. There is no plan to do a version 2.0.

Author

Martin Quensen, quensen@iqo.uni-hannover.de

Circuit

Standard voltage supply and TTL logic stuff. Also the PIDs are quite standard: Ad620 to read in setpoint and signal, then adder for error signal generation, separate P, I and D part, reference and voltage divider for output offset, adder for the final output signal. Some voltage follower OPs for the monitor outputs.

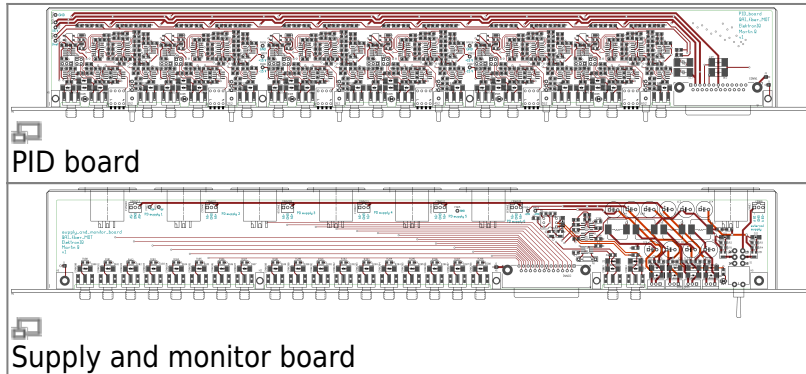
Schematic, PCB, everything: GIT

[Git](#) Care: "new_branch" is the correct one.

Layout

Two PCBs, each fits inside a 19" 1HE casing. They are connected by a SubD25 cable.

Pictures



Issues/Remarks/Thinks to improve

- The Read-in stage with a differential amplifier is a semi-good idea. The input-resistance changes, when you change the sign with the jumper. Use a nice instrumental amplifier instead.

From:

<https://elektroniq.iqo.uni-hannover.de/> - **ElektronIQ**

Permanent link:

<https://elektroniq.iqo.uni-hannover.de/doku.php?id=eigenbau:regler:pidqaisix:start>

Last update: **2021/11/03 09:28**

