

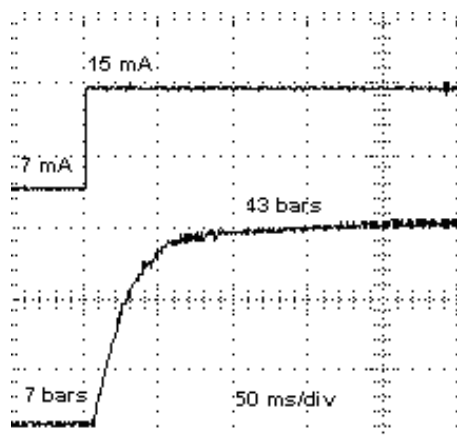
PWM Proportional Valve Amplifier



The ultimate ruggedness test

RATINGS

- 12V to 36V supply voltage
- Up to 1.5A output current
- 4-20 mA input command (isolated)
- 4-20 mA pressure telemetry
- -25°C to 85°C with no derating
- Min current: adjustable up to 0.5A
- Max current: adjust. up to 1.5A
- PWM frequency: 80Hz to 20kHz
- Dither frequency: 80-400 Hz
- Dither amplitude: 0-20%
- Dither waveform: triangular



Example of step response in an actual electro-hydraulic brake application

DESCRIPTION

Ubi_Press_01 is a rugged proportional valve amplifier ideally suited for commanding pressure control valves in mobile and railway applications.

OPERATION

A galvanically isolated 4-20 mA input allows “clean” operation even in the most noisy (from an electric disturbances point of view) environments. The output current (max 1.5A) is proportional to the 4-20 mA command. Ubi_Press_01 features a filtered, and properly conditioned, output for the supply of industry standard 4-20 mA pressure transducers. The transducer output signal is then used for closed loop output pressure control. A pressure telemetry 4-20 mA output is also available, mirroring the signal from the pressure transducer to the external world.

SAFETY FEATURE

Ubi_Press_01 features a special safety function, very useful in railway electro-hydraulic brake applications, which allows the control of the output pressure even in the event of an interruption of the cable to the pressure transducer. Standard Pressure Control Cards would in such case command full pressure (while trying to read to no avail the signal from the pressure transducer). Thanks to this special safety feature, Ubi_Press_01 is instead capable of allowing brakes application even with a broken cable to the pressure transducer, as the output pressure can still be controlled, albeit in a less accurate way. In such a condition the output current would still be proportional to the 4-20 mA command (thanks to the inner current control loop still operating in close loop configuration) and the output pressure would then be defined by the valve’s P(I) characteristic.

FEATURES

- Designed and tested (vibrations, EMC, env.) according to EN 50155.
- Inner current loop provides constancy of commanded output current, regardless of changes in input voltage or coil resistance.
- PWM frequency can be chosen LOW (e.g.: 400Hz) for inherent dither control, or HIGH (20kHz) for independent dither control.
- EURO 100x160 PCB design (custom solutions on request).
- Development version (with trimmers) allows adjustment of loop gain, Imin, Imax, dither frequency and amplitude (20kHz version only). We can then supply production series without trimmers (fixed resistors).
- Protected against output short-circuits.
- Protected against supply reverse polarity (if fused).
- Optional opto-isolated digital serial input command.
- Optional opto-isolated digital serial pressure telemetry.