Isolated 0-10V to 4-20mA Converter Application



Industrial controllers and data acquisition equipment frequently require an isolated voltage-to-current loop converter in environments where high common mode noise exist and protection of equipment and personnel from high voltages are required. The current loop, usually 4-20mA, is used to drive control valves or the input to chart recorders for temperature/pressure monitoring over time for example. Figure 1 shows a simplified block diagram of an isolated pressure transmitter.

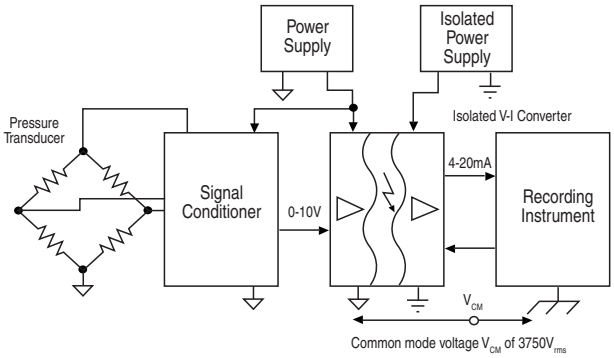


Figure 1. Isolated Pressure Transmitter

The LIA100P, with a typical Common Mode Rejection Ratio of 130dB (see Figure 1A) and isolation voltage up to 3750V is a good choice for this kind of application.

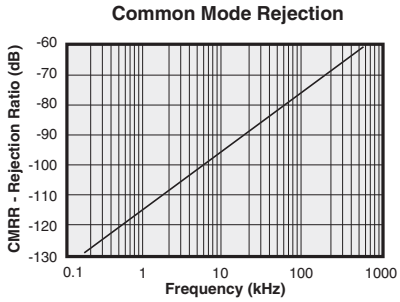


Figure 1A.

The example circuit for this application is shown in figure 1B.

The LIA110P is in the photovoltaic mode which has linearity comparable to a 13-14 bit D/A converter with 1 LSB nonlinearity or 0.01% of full scale.The result is a clean, linear conversion from 0-10V to 4-20mA as shown in figure 2.

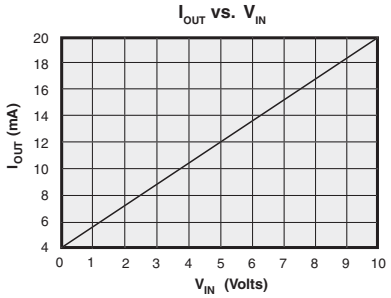


Figure 2.

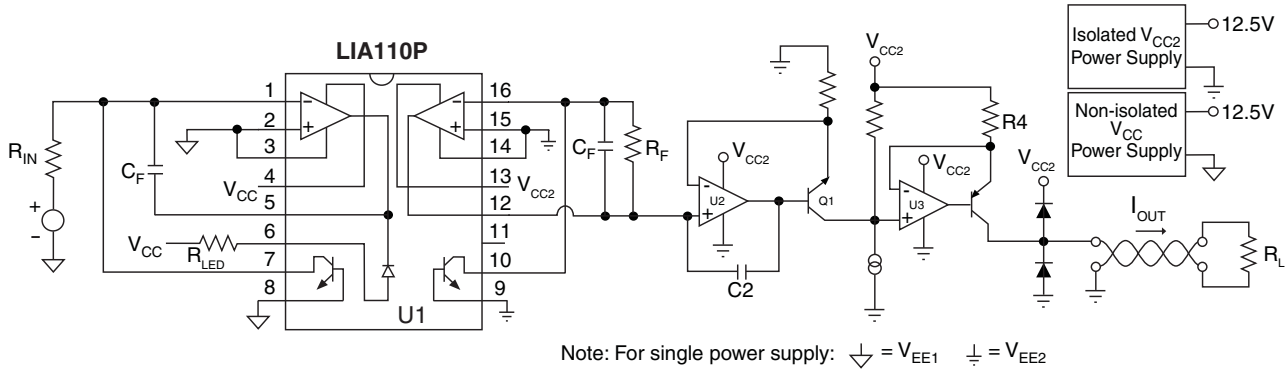


Figure 1B. 0-10V to 4-20mA Converter

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