



## Category: Level Translators

## CIRCUIT IDEAS FOR DESIGNERS

Schematic no. LT\_23002.0

Voltage Level Translator

## Description

Basic voltage level translator utilizes a voltage comparator to translate an input voltage range into an output voltage range. First step is to determine the input voltage range, which involves an input low voltage level VIN(low) and an input high voltage level, VIN(high). Next step is to figure out the proper reference voltage level, at VREF. In many cases VREF can be simply midpoint between VIN(low) and VIN(high). In other cases, one may want to skew the VREF voltage level towards either VIN(low) or VIN(high). In this example, the output voltage range is simple ground and V+, which also represent output voltage that range from rail to rail. For logic circuit type of voltage level translator, VREF could be set to 1.4V for TTL logic voltages, and V+/2 for CMOS logic voltages. Note that this circuit utilizes an open drain voltage comparator, which requires a pull-up resistor to V+. This pull-up resistor can be readily replaced by diode(s), zener diode, or a combination of resistors and diodes or zener diode to change the VouT(high) voltage level. Similarly, these components can also be employed to set VouT(low) voltage levels. Hence by using an open drain voltage comparator it is simpler and easier to modify both VouT(low) and VouT(high) voltage levels.

For full schematic diagram and notes, please register and login at aldinc.com

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