



Using the Digital Inputs of the 4550

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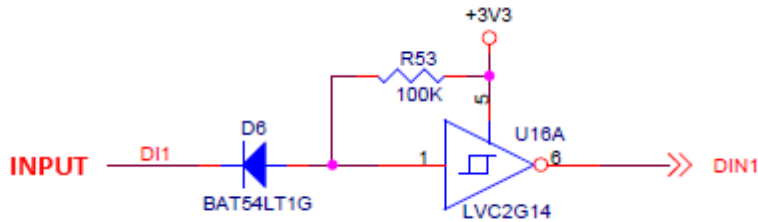
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Circuit Summary

This is the internal digital input circuit of the 4550:



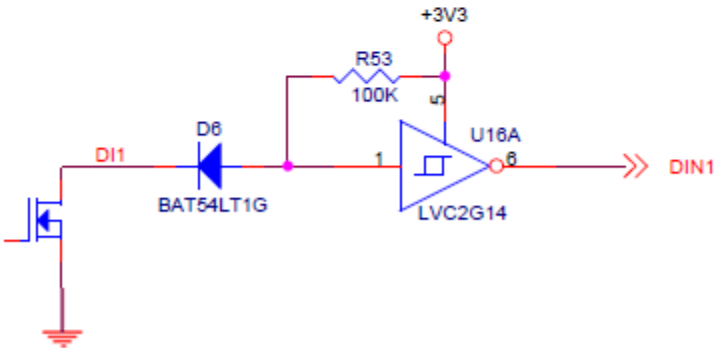
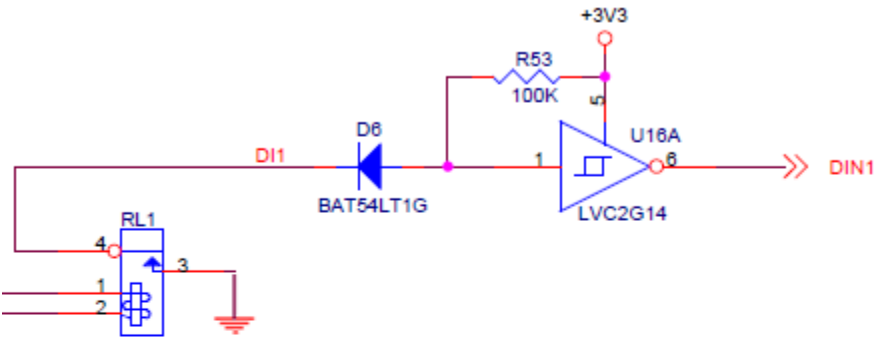
This circuit is designed to operate with no external circuitry in support of equipment providing:

- contact closure (switch or relay) outputs or
- open collector/open drain solid state outputs

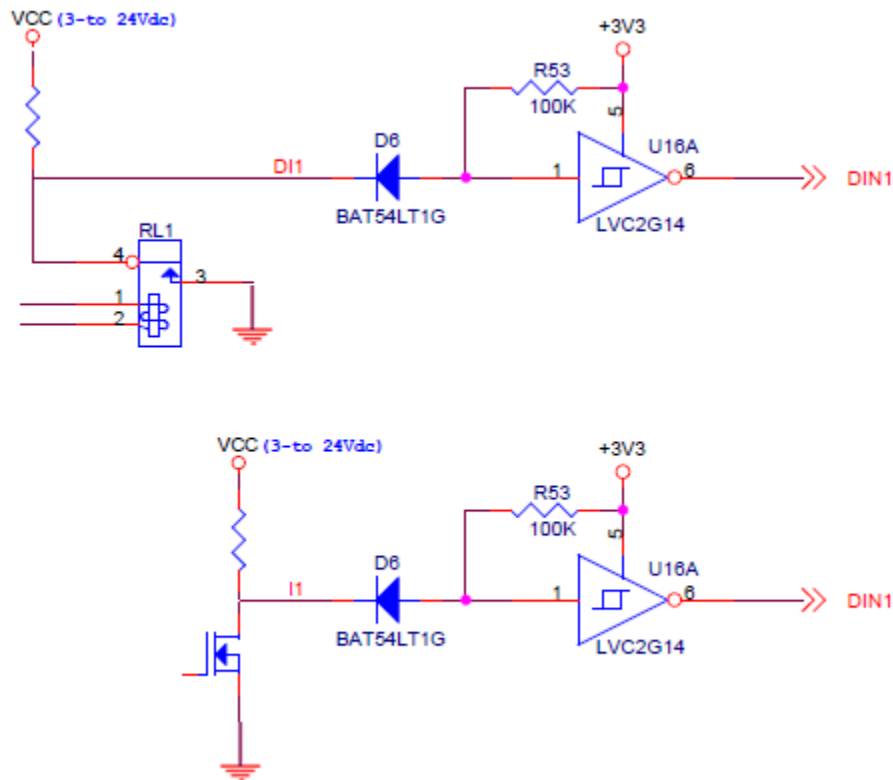
Either type of output can take advantage of the built in pull up circuit that we provide and can activate the digital input by pulling it to ground with either closed contacts or an open collector/open drain output.

This input circuit also allows you do use external voltage sources such as 24vdc or 12vdc since we have an inline blocking diode (D6). You can select an appropriate pull up/current limiting resistor value and pull the input up to whatever dc level is required. As described above, contacts or an open collector/open drain output can then pull the input to ground. Examples of both are shown below.

Examples Using Internal 3.3vdc Pull Up



Examples Using External Voltage Source and Current Limiting Pull Up



Using the Analog Inputs of the 4550

Analog inputs of the 4550 are not isolated. They may be configured to accept either a 0-5Vdc or 4-20ma input. If higher voltages such as 0-10Vdc are required, an external voltage divider must be used to properly scale the input signal. Damage to the input circuitry should not occur unless voltage exceeds 30Vdc.

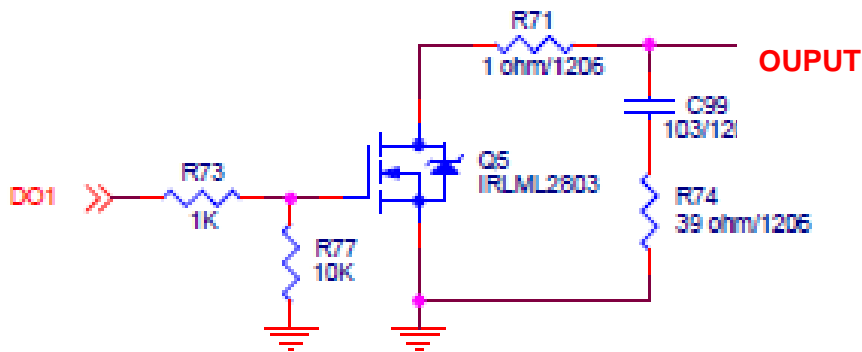
When configuring a 4-20ma input, there are three common configurations:

1. Loop powered – This is a two wire connection.
 - a. Use the 4550 (+) supply to provide power to the loop.
 - b. Connect the loop return to the appropriate IN1-IN4 input of the 4550
2. Sensor powered by 4550 – This is a three wire connection where power is being supplied by the same power supply that is powering the 4550 but on a separate connection from the actual signal loop. This configuration becomes necessary when a sensor requires a substantial amount of current to operate.

- a. Use the 4550 (+) supply to power the sensor.
 - b. Use the 4550 (-) supply to ground the sensor
 - c. Connect the loop return to the appropriate IN1-IN4 input of the 4550
3. Sensor has its own power source – This is a two wire connection.
 - a. Connect the loop return to the appropriate IN1-IN4 input of the 4550
 - b. Connect sensor ground to 4550 GND

Using the Digital Outputs of the 4550

This is the internal digital output circuit of the 4550:



This circuit is designed to drive external DC loads and will sink a maximum of 250ma.

The external load may be powered by the 4550 DC supply voltage or by a separate DC power source. If a separate DC power source is used, the ground of that separate source must be referenced to the (-) of the 4550 DC supply. It is important to understand the DC characteristics of the external load. In some cases, current limiting will be required.

Example using a 4550 Output to Drive a Relay

