

Telephony Solutions: Ring Detection with SX Communications Controller

Application Note 4
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Introduction

This application note outlines the hardware and software needed to provide telephone ring detection. This software may be used alone or combined with other telephony modules as required.

Hardware

Certain basic hardware is required to properly interface to the telephone network. Figure 1 shows a typical circuit for ring detection - there are many possible variations in requirements based on area and telephone network providers, so check with your network provider first.

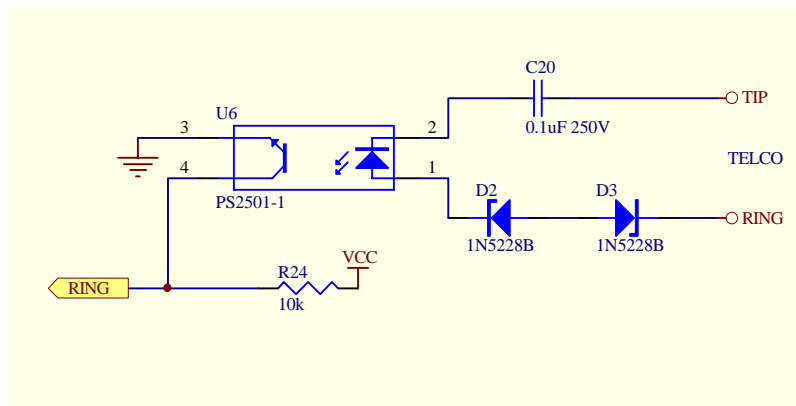


Figure 1.

Software

For software, the requirements are quite simple:

1. Ignore off-hook glitches or line noise
2. Provide notification of ring event

In the example circuit above, the RING input will go low when a ring event occurs. Noise or an off-hook can also cause this input to briefly go low, so to avoid this, while the RING input is low, the 16-bit ring_count register is incremented and the ring_lo_det flag is set. As soon as the RING input goes high again, if the ring_lo_det flag is set the ring_count register is tested to be above a certain count. This count represents the time duration that the RING input was low, with each count representing 1/RTCC seconds.

If the count was below a specified duration of time, it must be noise or an off-hook, and the ring_count registers and ring_lo_det flag are cleared. If the count was above the specified duration of time, it must be a ring event, the ringing flag is set, and the ring_count registers and ring_lo_det flag are cleared to look for the next ring event.

The same method could also be used for detection of distinctive ring patterns by incrementing another count register instead of just setting the ringing flag.

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