

What is the maximum distance for Wiegand reader cabling?

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The short answer is the distance recommendations vary from reader to reader. Consult the manufacturer for your specific reader.

The long answer is it varies from reader to reader and installation to installation because environment affects cabling as much as the equipment itself does. The **theoretical** limit for Wiegand signal wire to a reader from the panel is 500 feet assuming you are using at 18 AWG shielded, excellent quality cable in a noise-free environment. If you use 22 AWG, that distance drops dramatically to 250 feet. These numbers are for ideal conditions. In many cases these lengths will not work because of factors that are beyond your control. In addition, these numbers degrade over time which means that what worked a few months ago may not continue to work.

Many reader manufactures give different numbers. The distances vary from as little as 100 feet to the theoretical limit of 500 feet depending on the cable quality and gauge. But remember, there are environmental factors. Electrical noise is one of the largest factors. Cables run through an electrically noisy environment need to be shorter. And that electrical noise may not be under your control or even easy to detect. For example, the warehouse across the street plugs in the fork lift charging station, or the street lights come on. How the shielding is grounded has an effect, too. Normally it is only grounded at the panel. However, under some circumstances other grounding methods may work better.

As you can see there is no single answer to this question because there is no standard environment; every installation is different. We suggest being conservative and keep runs closer to 200 feet paying close attention to the environment where the cable is run. If you have a clean environment, you might be able to run longer. But if the environment isn't clean, you may need to run shorter lengths.

That being said, all wiring must conform to requirements specified by the following:

- National Electric Code (NEC) specifications, where applicable
- National Fire Protection Association (NFPA) NFPA 70: National Electrical Code
- Local building electrical codes
- Any other authorities having jurisdiction