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DELAY DETECTION

Delay detection is a valuable capability that is used with presence detection to avoid unnecessary calls for the green. Not too many years ago the only way to achieve delay detection was to purchase and install a detector unit having delay capabilities. These days, many modern controllers now allow delay settings to be set within the controller rather than at the detector unit. Since the cost of the controller is not affected by this capability (you get the internal delay capability whether you want it or not), whereas the price of the detector is usually affected by this capability (delay detectors cost about \$15 more per detector than detectors without delay), you can save a little money by using internal controller delay settings.

There are a few issues to consider when deciding between "internal delay" (within the controller) and "external delay" (at the detector):

- 1.) When a delay setting is set at the detector unit it is easier for someone to recognize that delay exists for a given movement. The technician need only glance at the face of the detector to see that a delay setting is active. However, when delay settings are made within the controller it is impossible to tell at a glance that they are active. This could cause some confusion during timing evaluation or troubleshooting, especially for someone that is not familiar with the installation.
- 2.) If one technician programs the delay settings into the controller and then, subsequently, a second technician installs the same delays settings on the detector units, you will end up with twice the intended delay. This is possible if it is not clear from the timings sheets where the delay settings are to be installed.
- 3.) Most detectors flash their LED output light during the delay period with the light going to a steady "on" indication once the delay period has been exceeded and the call is sent to the controller (if the vehicle is still present). The flashing LED is a clear indication that a delay period is being timed. The indication is not so obvious on a controller display. In fact, modern controllers usually have many output displays to choose from and if the correct controller display has not been selected there will be no indication at all that a delay period is timing.
- 4.) Probably the most important item to recognize is the difference between per-phase delay and per-lane delay settings. If a separate delay detector is used for each lane, then delay settings can be made on a per-lane basis. However, if only one detector unit is used for each phase, with this detector unit monitoring more than one lane, then delay settings can only be made on a per-phase basis. Per-lane delay capability gives the signal timing engineer more flexibility than per-phase delay. For example, with per-lane delay capability a 10 second delay setting can be activated for a side street right turn lane (to accommodate right-turns-on-red) while the adjacent side street thru lane receives no delay.

The same logic holds true for delays settings that are internal to the controller. If the controller only permits per-phase delay settings (which seems to be the case for most controllers), then this ability to assign different delay settings to different lanes is lost. Some controllers do allow the programming of per-input delay (a.k.a. per-lane delay) but the cabinet and detector panel need to be properly wired to support it (with each lane wired to a separate detector unit and each detector unit wired to a separate controller input channel).

The above discussion is based on the use of single channel detector units (having one channel per detector unit). If multi-channel detectors are used the principal is still the same, however, the wording of the discussion would need to be changed to replace "detector unit" with "detector channel".

Delay detection is a very useful timing tool that can be used in a variety of circumstances to make the signal operate more efficiently. Whether the delay settings are installed within the controller or on the detector unit itself, they should be installed properly so that the intended operation results.