



Detailed Technical Specification

Pedestrian Countdown at Traffic Signals

PURPOSE:

This document provides insight into the functionality of units specified by TfL as part of the project to deploy Pedestrian Countdown at sites in London. The specification used by TfL is based on lessons learned during the trials of Pedestrian Countdown at Traffic Signals (PCaTS), and includes additional detail (and in some cases optional / additional functionality) than the HA Specification TR2581A.

KEY FUNCTIONALITY:

Fault Monitoring: Pedestrian Countdown signals are complex, intelligent systems and as such can be complex to troubleshoot when faults occur. This optional functionality has the benefit of allow the authority to identify faulty units and therefore maximise availability of functional units through their maintenance regime.

The external visual indicator of fault type can assist the maintenance team in identifying and therefore managing the faults quickly and efficiently, in some cases without needing to access or remove the unit.

The historical fault log will assist with identifying reoccurring faults, and may also support detailed fault finding activities (for both the supplier and authority) if required. As such systemic failures or units that are consistently showing faults can be interrogated to identify causes, potentially reducing the timescales for resolving the fault.

Dual Noise Filter: The dual noise filter concept is borne out of a requirement for accurate timing, robust display and increased “availability”. The noise filter is needed to ensure the product can reliably and accurately measure the countdown period.

In general terms it is important to keep the noise filter as small as possible to ensure the display starts and stops in line with the Red and Green pedestrian signals. However due to the design of a number of traffic signal controllers there is a requirement to increase the noise filter duration considerably.

Certain traffic controllers test their conflict relays once a day to ensure they are operational. This has the effect of causing a dip in the traffic signal lines of ~250ms. These same relays are used for each Dim\Bright switch. This means the countdown unit needs to “cope” with this to avoid relearning each time the relays are used, 3 times a day.



To avoid the increased noise filter introducing too much of a delay at the end of the countdown period a dual filter is used to cope with the 250ms dip whilst turning off promptly with the red pedestrian signal.

Power Hold up Time: TfL requires a 300ms hold up time for much the same reasons as above.

To ensure that the countdown units turn off in the event of a signal “all-out” the 48vdc power supply is switched via an additional “switched sign” phase in the traffic signal controller. That phase is programmed to be always on with the signals. As this switching is affected by the conflict relays it needs to sustain operation for up to 300ms.