

The third choice to be made is the type of control system. Switching luminaires used to be the only viable approach to take, but now, with high frequency electronic dimmable ballasts dramatically reducing in price, dimming is a realistic option in some cases. For exterior today especially with LED and also some cases with fixtures with fluorescent light sources, dimming can be used to reduce energy consumption even when daylight is absent. This is due to the fact that all lighting is designed for average maintained illuminance, which provides more light to start with, than is required. For exteriors, switching and dimming can be used to match the lighting to the patterns of use, for example a supermarket car park does not need to be completely lit at 3 a.m. Experience has shown that any users at that hour will likely park near the entrance.

There are basically two different forms of lighting control systems: analogue and digital (see Chapter E / 2.0):

- Analogue systems typically use a 1–10 volt protocol providing continuously variable dimming, not recommended for exterior installations; because of the fact that it is an old technology and switch off must be provided by additional power relays.
- The digital systems most widely used are DALI and DMX 512(-A) (see Chapter E / 2.3). Both of these systems provide continuously variable dimming. The advantages of digital over analogue control are many, one of the most important being the ability to monitor an installation through a two-way communication capability. This transfer of information makes preventative maintenance and energy monitoring possible, additionally it is possible to make a 'zero' setting, having the fixtures on 'zero energy' mode, but in standby. Making them 'off' power would sometimes, depending on the system used, require a separate switching module. During design attention must be put on the fact that 'power off' may cause problems during re-start because some fixtures may not be able to get their addresses as needed/wanted. This problem could be resolved by choosing the right fixtures (for example with manual address element) or by programming so that all fixtures in groups are governed by DALI which instant addresses during every start-up phase.

Control systems can provide the possibility of individual or group addressing, zoning and scene setting. The recording of energy consumption is also highly desirable if the installation is to provide the information for monitoring required by the authorities.

Some control systems allow remote monitoring via the internet. This can be of great benefit to cities, governments with large areas. By monitoring centrally in a region or area, preventative maintenance can be undertaken such as the anticipation of bulk lamp replacement from the hours-run data.

