

RoadMax and Photocontrol Failsafe™

As luminaires have evolved from HPS and MH to LED, the weakest component in the luminaire’s operation switches from the HID bulb to the photocontrol. Photocontrols can typically fail one or more times over the life of the luminaire, placing a significant demand on maintenance costs. Photocontrol Failsafe is an optional feature on RoadMax that can eliminate the ongoing maintenance costs of photocontrol replacements. This document explains how Photocontrol Failsafe operates with all RoadMax luminaires: RX1, RX2 & RX3.

Photocontrol Failsafe is an intelligent controller inside the luminaire that monitors the operation of the photocontrol for dusk-to-dawn operation. Should the photocontrol fail to switch the lamp on at dusk or switch off at dawn, Photocontrol Failsafe will override control of the photocontrol and provide normal operation of the lamp.

Photocontrol Failsafe is available on RoadMax for any photocontrol configuration: seven-pin socket, three-pin socket or Evluma’s Integrated Photocontrol. Upon shipment from the factory, the RoadMax is configured for the approximate location where the fixture will be installed as a starting point for Photocontrol Failsafe dusk and dawn time calculations. The time of day is also configured and stored in a highly accurate Real Time Clock with battery backup. On RoadMax ordered with Photocontrol Failsafe, location and time can also be updated using ConnectLED.

Evluma recommends installing RoadMax with a photocontrol in place, either new, factory installed, or from the fixture being replaced. Once a RoadMax is installed, Failsafe begins to collect data on the normal dusk and dawn cycles triggered by the photocontrol. Over time, the data collected about the ambient lighting conditions for the luminaire’s immediate location is used to calibrate Failsafe.

As long as the photocontrol operates normally, Failsafe will continue to collect data and monitor the photocontrol operation in the background. If the photocontrol misses an expected dusk or dawn transition, Failsafe waits for additional missed transitions for verification. In RoadMax luminaires Failsafe waits for three missed transitions. Figure 1. Failsafe then takes control of the luminaire and switches it on or off appropriately based on its own time-of-day settings.

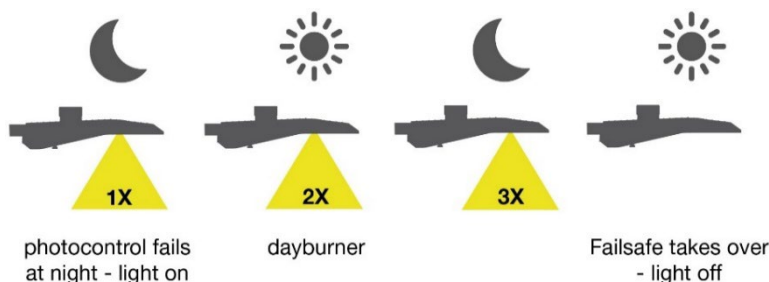


Figure 1. Failsafe registers three missed dusk-to-dawn transitions before taking control of the luminaire.

Photocontrol Failsafe will continue to operate the luminaire indefinitely and the photocontrol never needs to be replaced. In the event the photocontrol begins working or is replaced, Failsafe will return control of the luminaire to the photocontrol and monitor in the background. Failsafe runs on Coordinated Universal Time (UTC). Daylight Savings Time (DST) is not applicable to the sunrise and sunset calculations in Failsafe.

Another benefit of the design of Failsafe is the extended life of the photocontrol installed on a RoadMax. The typical luminaire design utilizes the photocontrol to physically switch AC power on at dusk and off at dawn. Switching is accomplished by a relay in the photocontrol. LED drivers have a large inrush current when powered up, which can stress the relay contacts and wear them out over time. The RoadMax design does not utilize the photocontrol for AC power switching for the luminaire, but instead uses the switched relay output as a low current sensor for Failsafe to monitor. This can dramatically increase the life of the photocontrol.

Photocontrol testing will not affect the operation of Photocontrol Failsafe during the 15-day initial installation period.

Photocontrol Failsafe & ConnectLED

RoadMax configured with Photocontrol Failsafe work with ConnectLED, Evluma's BLE controls application. ConnectLED (Android and iOS) can be used to update the location of the RoadMax via GPS. This additional refinement to location is used by Photocontrol Failsafe to update the factory configured location settings, improving the extrapolated accuracy of each transition. The RoadMax will automatically collect this data over time, so while the GPS location is helpful during the first two weeks of operation, it is not necessary. ConnectLED can be used to view the lamp status to determine if the sensor has failed and the luminaire is operating in Failsafe. ConnectLED can also be used to change the RoadMax from Failsafe ON to Failsafe OFF, or vice versa.