

Q&A: NFPA 72 Light Pulse Duration Requirements & Latest Solutions

Q: What are the new codes for light pulse duration?

A: The National Fire Protection Association (NFPA) updated visual signal light pulse characteristics in the 2016 edition of *NFPA 72 National Fire Alarm and Signaling Code*. The new code update states in section 18.5.3 that the maximum light pulse duration shall be 20 milliseconds (ms) for all applications. The light pulse duration was reduced from 200 milliseconds (0.2 seconds) in the previous edition of NFPA 72 to 20 milliseconds (0.02 seconds) in the 2016 edition.

Q: Why is the pulse duration important for fire alarm signaling?

A: The shorter light pulse requires a much brighter light output to reach the required candela rating. The latest research shows that the brighter light output (the high peak intensity) was found to be more effective at alerting people who were not looking directly at the strobe (indirect viewing). The research indicates that the peak level of light must be equivalent to a visual signal appliance with a pulse width of 20 ms or less to be used for both direct and indirect applications.

Q: What is the time interval of a visual signal appliance light pulse width?

A: The light pulse width is the time interval between initial (rising) and final (falling) edge of a pulsing light (on time) measured at 10 percent of maximum signal or peak intensity.

Q: When do these codes go into effect?

A: NFPA 72 2016 went into effect January 1, 2016.

Q: What is the responsibility of the integrator?

A: The light pulse duration (pulse width) is part of the listing process under UL 1971 for manufacturers. However, it does not necessitate any special attention from installers, inspectors or designers other than verifying that the device is listed to comply with the UL 1971 requirement. Installers can check the product label and/or verify that the product meets the 20 ms requirement in the installation instructions.

Q: Can you mix xenon visual signal appliances and LED devices in the same field of view?

A: Yes, by meeting the 20 ms light pulse duration requirement and passing a series of compatibility tests, the new Wheelock Exceder LED3 devices by Eaton have been listed by UL to allow mixing of Wheelock xenon devices in the same field of view. With the new line, Eaton now offers a full range of products with low and high candela settings, ideal for both retrofits and new construction.

Q: Are the new Exceder LED3 strobes compatible with OEM fire panels?

A: Yes, the Wheelock Exceder LED3 product line has been UL/ULC listed as compatible with all fire alarm control panels and accessories that have been determined to be compatible with Wheelock RSS strobe-based products.

Underwriters Laboratories (UL) confirms that the Wheelock Exceder LED3 product line has been investigated and meets NFPA's 20 millisecond light pulse duration code requirements. In addition, the Wheelock Exceder LED3 product line (LHS3, LST3, LHN3, LSPST3, LFHNK3, LFHSK3) has been listed as compatible with all Fire Alarm Control Panels and accessories that have been determined to be compatible with Wheelock RSS-strobe based products including the RSS, CH, E, EH, ET,ST,HS,MT,S8, SA, STH and Z Series. This listing allows for up to 105 strobes LED3 devices per NAC depending on Candela setting and NAC ratings.

Q: Will the new Exceder LED3 model numbers be listed in the OEM compatibility document?

A: No, not necessarily. The Exceder LED3 Series has been listed by UL to be backwards compatible with Wheelock xenon RSS strobe-based products. Therefore, any FACP that is listed with any one of Eaton's RSS strobe-based products has been determined to be compatible with the Exceder LED3 series.

Q: What are the advantages of using LED as a light source for visual signal appliances?

A: As in most industries, LEDs provide high energy efficient technology, and LED strobes lead the industry in low current draw (most popular candela settings), which can provide substantial overall system cost savings. This includes reduction in wire size, fewer power supplies, and less battery standby capacity required for the same coverage area. LED technology as the light source for strobes is an innovative approach in more ways than just cost savings. The LED light engine can closely control and manage the light source and output. It maximizes human response to a light pulse and optimizes light based on parameters of area and perception of the human eye. LED technology provides a way to manage this engine and thus optimizes light output. In comparison, with the xenon strobes, light can't be controlled. It is flash only. In addition, light source life of the LED is

50,000 to 100,000 hours vs. the xenon strobe with 1000 to 5000 hours of life, assuming steady operation.

Q: Where can I find additional information on NFPA 72 2016 Visual Signal Appliance Light Pulse Duration Codes and Eaton's latest product lines that comply with these codes?

A: Review NFPA 72 2016 *National Fire Alarm and Signaling Code Handbook* (18.5.3), visit Eaton.com/massnotification, email LifeSafety@Eaton.com or speak to your local sales representative.