LED Compatible Circuit Interfacing Ballast

Description

- Efficient and low maintenance LED lamps are replacing older generation lamps, however market LED drivers are not compatible with gas-discharge ballast lamps.
- A compatibility buffer circuit may be used for detecting an existing ballast circuit and bypassing the LED driver.
- The compatibility buffer circuit detects high-frequency signals from the ballast and generates a control signal to activate a switch which bypasses the high-frequency signal.
- Energy transfer to the LED load is through the buffer circuit and LED drive regulator.
- Input signal may be received either directly from ac line, from a magnetic ballast or from an electronic ballast circuit.

![Figure 1. Input interface of LED Driver with compatibility buffer circuit](image1)

![Figure 2. Compatibility buffer circuit in LED Driver with switching regulator](image2)
LED Compatible Circuit Interfacing Ballast

- **Benefits**
  - Provides safe and efficient replacement of ballast operated discharge lamps with LED lamps without rewiring
  - Replacing with LED lamps can improve the lighting efficiency and color characteristic along with reducing maintenance and electric utility consumption for the end user
  - Can be designed as integrated circuit (IC) with the LED driver (Figure 3), or combined with the input rectifier bridge (Figure 4) to be included in the LED tube

![Figure 3. Example compatibility buffer circuit with an LED Driver](image1)
![Figure 4. Example compatibility buffer circuit combined with the input rectifier](image2)