

# Notes on the operation of SubstiTUBE® T8 EM and SubstiTUBE® T8 UN in compensated luminaires

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For the use of fluorescent lamps in the so-called choke/starter operation, ballasts are used as inductive CB (conventional ballasts) or LLB (low loss ballasts). These on a coil-based operating devices for current limiting creates an inductive reactive power for such luminaires. In order to counteract the resulting deterioration of the power factor (the so-called power factor describes the time course of current and voltage), luminaires were partly equipped with additional compensation. The compensation capacitors, which are usually installed in the parallel in the luminaires, reduce the coil effect of the ballasts and the temporal shift in voltage and current characteristics generated thereby. These capacitors were specified and designed according to the technical requirements of the fluorescent lamps. This equipped luminaires are referred to as „compensated luminaires“.

When using SubstiTUBE® T8 EM or UN in compensated luminaires, consider the following:

- When using SubstiTUBE® T8 EM or UN (LED lamps) in compensated luminaires, the capacitors used have a different effect than with fluorescent lamps: the power factor of the compensated luminaires deteriorates compared to operation with fluorescent lamps and the so-called reactive power is significantly increased. If necessary, this can lead to an increase in energy costs for the user (in particular, this depends on whether a reactive-current meter is installed and how the total power consumption is defined).
- The number of SubstiTUBE® T8 EM or UN that can be operated simultaneously on the same circuit breaker is limited. When operating in compensated luminaires, this number is significantly lower than when operating in non-compensated luminaires. The maximum possible number of SubstiTUBE® T8 EM or UN in compensated luminaires on a circuit breaker can be found in the respective product data sheet in the download area for the respective product (<https://www.ledvance.com/professional/products/lamps/led-tubes/index.jsp>).
- In order to avoid the before mentioned undesired effects (increased reactive power and low maximum number of lamps which can be the operated at the same time), the capacitor can be removed from the luminaire. This is a modification of the luminaire (the constructor is responsible for the conformity of the converted luminaire with the applicable statutory requirements, technical standards and test marks).