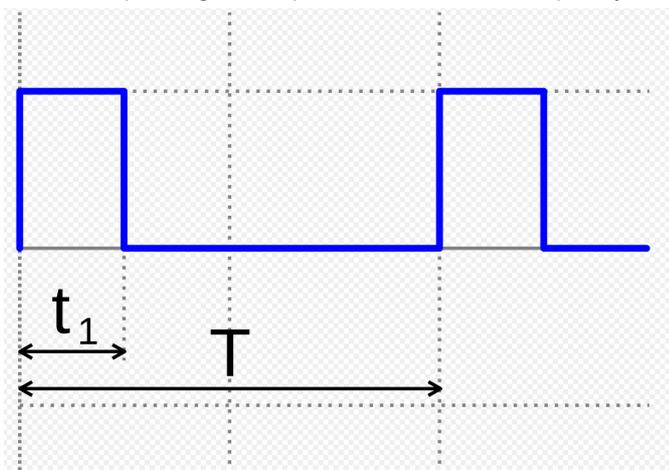


New firmware 1.049

Enertex 4Kanal LED Dimmsequencer 5 A

New firmware 1.049 for Enertex dimming sequencer offers optimal load sharing

The brightness regulation of LED lamps (12..24 VDC) is usually done by pulse width modulation (PWM). As shown in the following figure, this means that the lamps are switched on within a period T for the duty cycle t_1 . The duty cycle related to T is given in percent, in the example in the figure 25%. For the Enertex dimming sequencer, T is 1/488 s or 1/600 s, depending on the parameterized PWM frequency.



Source: Wikipedia by MatthiasDD - Own work, based on: Square wave.svg, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=3683151>

For many dimmers, each channel is now switched on simultaneously and, depending on the percentage of time the channel is switched on, is switched off again before reaching T . This means that the power supply is always operated at full load for the minimum switch-on duration of all channels, respectively that the power supply must be designed for the total current of the entire dimming power. However, Tunable White lamps may only be controlled in such a way that both channels (cold white and warm white) are not operated at more than 100% in total. Since the usual control of the Tunable White lamps corresponds to the standard case of PWM, each of the LEDs is operated with $t_1=T/2$ (=50%) and full current at 50% cold white percentage and full power. During this time 2x the nominal current is demanded from the power supply. Therefore, in this case the 24 V power supply unit for supplying the LEDs must be designed for twice the nominal current of the lamp.

The new firmware takes this constraint into account: The next oscillogram shows a cold/warm-white channel pair (yellow=cw, blue=ww), which is operated with 100% brightness and a mixing ratio of 1:1.

