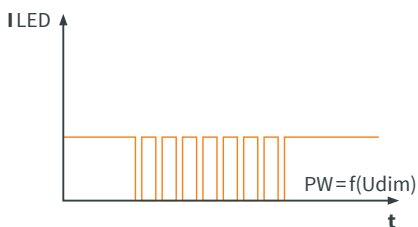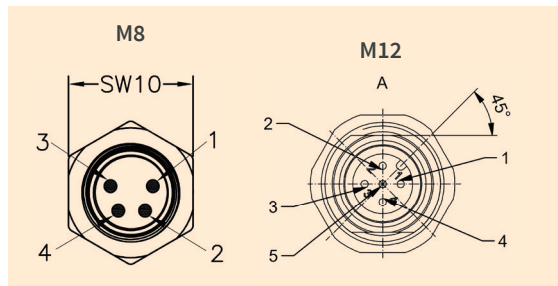# Internal -s Controller

Versatile internal -s controller for MBJ standard lighting with four operating modes and high efficiency for low heat generation.

Electrical connection and operation modes

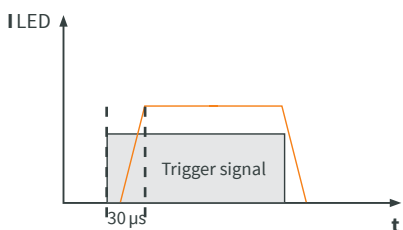MBJ lights are delivered with M8 4-pin connector, M12 5-pin connector or 4-core cable with open cable end.

Pin	Color[1]	Steady light	steady light with brightness control	Triggered flash	Triggered light
1	brown	24 VDC	24 VDC	24 VDC	24 VDC
2	white	24 VDC	1...10 V	0 V or Ground	24 VDC
3	blue	24 VDC	0 V or Ground	Trigger	Trigger
4	black	Ground	Ground	Ground	Ground
5	green-yellow	not used			

1)) Wire color of MBJ lighting cable
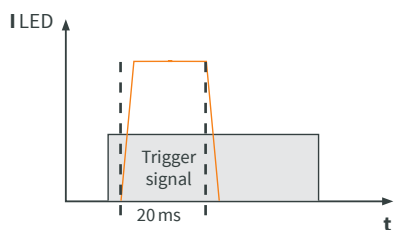
M8

M12

Steady light with brightness control

The brightness can be adjusted via an analog control input between 1V and 10V with a maximum resolution of 200 steps. Due to the PWM control with 3.8 kHz we recommend an exposure time of the camera of at least 5 ms.

Pin2 (DIM) is a high resistance current sink with an input current of 0.2 mA at a 5 V signal level and 1mA at a 24 V signal level.

$PW = f(Udim)$

Trigger

The trigger input is high active. From a signal level of approx. 5 V, the lighting is switched on. Up to a signal level of 1 V the lighting is switched off. The latency of the trigger signal is max. 30µs.

Pin3 (Trigger) is a high resistance current sink with an input current of 0.2 mA at a 5 V signal level and 5 mA at a 24 V signal level.

Triggered flash

The lighting generates a flash that is up to 2x as bright as steady light. The flash is synchronous to the trigger signal
with a maximum possible time of 20 ms. If the trigger signal remains active for longer than 20 ms, the light switches off automatically after 20 ms. Clock frequencies up to 1 KHz are possible. As maximum duty cycle we recommend 25 %, as minimum flash time 100 µs.

Application Samples

Steady light

Steady light with brightness control

Triggered light with NPN sinking output (inverted strobe signal, open collector)

Flashed light with PNP sourcing