Just do it yourself ;)

Datasheet Illuminators ITSLUX, SUPERLUX, GREENLUX, WHITELUX and WHITELUX-VIDEO

PUMATRONIX
movimento em foco

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This document is intended to provide technical information, in addition to detailing operation principles and installation of Pumatronix illuminators.

1 Overview

ITSLUX, SUPERLUX, GREENLUX, WHITELUX and WHITELUX-VIDEO are light emitting electronic devices that allow to nighttime image capture. These devices emit pulsed light, similar to a photographic flash lamp. Operating in this mode, Pumatronix illuminators are activated only during the exposure time of the image sensor (shutter) and require little time to recharge. Thus, there is energy saving, increasing of LED life and reducing of the amount of necessary LEDs.

Model	LED type
ITSLUX and SUPERLUX	Infrared
GREENLUX	Green
WHITELUX and WHITELUX-VIDEO	White

There are various illuminator models and the main difference is the distance between the object that needs to be captured and the illuminator.

Model	Emission angle	Recommended capture distance
ITSLUX 150	15°	4 to 14m
ITSLUX 300	15°	4 to 21m
ITSLUX 150-60	60°	0 to 3m
SUPERLUX 150	10°	15 to 21m
SUPERLUX 300	10°	15 to 28m
GREENLUX	15°	4 to 8m
WHITELUX-32	32°	4 to 12m
WHITELUX-75	75°	2 to 8m
WHITELUX VIDEO-32	32°	4 to 8m
WHITELUX VIDEO-75	75°	2 to 4m

2 Handling Risks

2.1 Electrical Shock Risk

Do not open illuminator because there are no repair parts or user configuration inside. In case of operational problems, refer to the Pumatronix Technical Assistance.

2.2 Vision Damage Risk

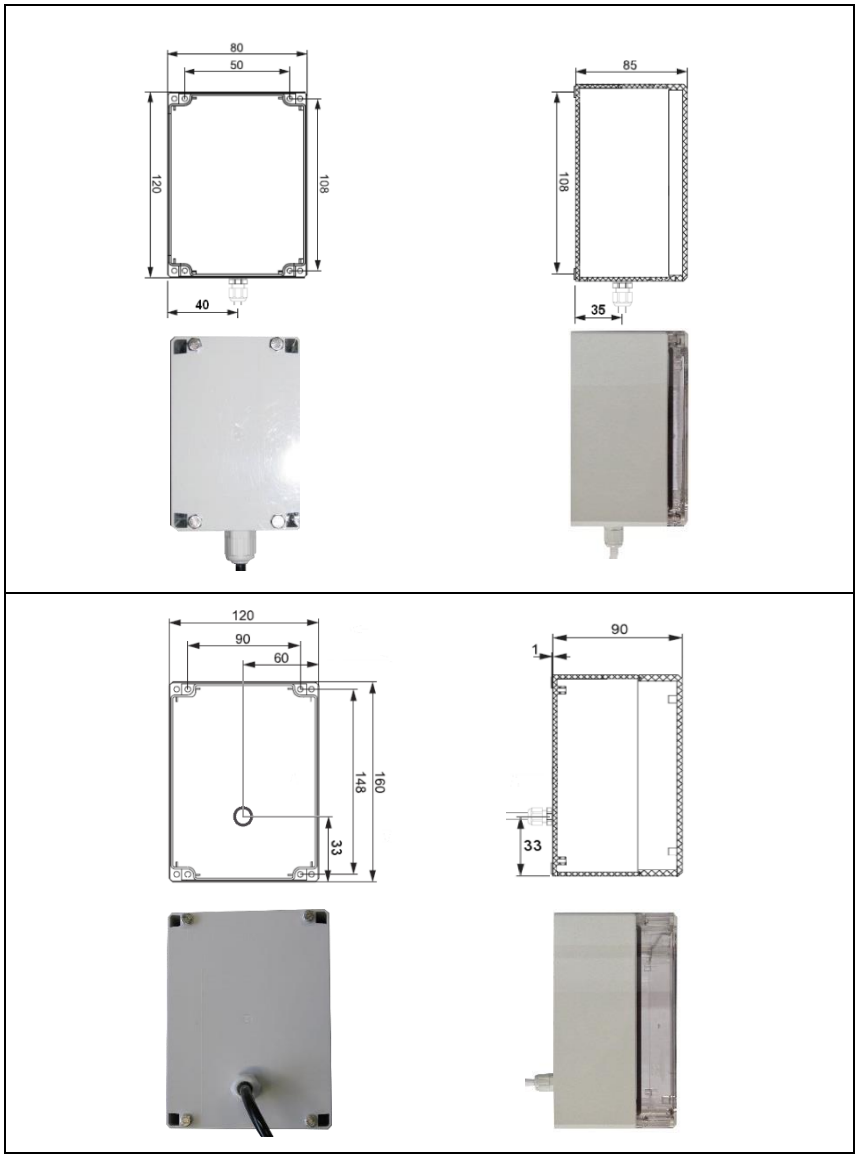
Illuminators emit thermal energy and non-visible light (for infrared illuminators). It is not recommended to look directly at the LEDs and it is not recommended to use any optical instrument to look directly at the LEDs. In case of operational problems, contact Pumatronix Technical Assistance.

3 Mechanical Specification

All Pumatronix illuminators have equivalent mechanical properties regarding their material, clamping mechanism and operating temperature. However, their case size depends on the amount of LEDs.

Case	Polycarbonate with IP67 protection (withstands water jets and weather)	
Approximated weight	Small 650g	Big 1050g
Installation	4 screws diameter 3/16" (not included since the length differs according to the application)	
Operating temperature	-10°C to 60°C	

Model	Dimensions
ITSLUX 300	160mm x 120mm x 90mm
ITSLUX 150	120mm x 80 mm x 85 mm
ITSLUX 150-60	120mm x 80 mm x 85 mm
SUPERLUX 150	120mm x 80 mm x 85 mm
SUPERLUX 300	160mm x 120mm x 90mm
GREENLUX	160mm x 120mm x 90mm
WHITELUX-32	120mm x 80 mm x 85 mm
WHITELUX-75	120mm x 80 mm x 85 mm
WHITELUX VIDEO-32	120mm x 80 mm x 85 mm
WHITELUX VIDEO-75	120mm x 80 mm x 85 mm



3.1 Illuminator Installation Support

ITSLUX illuminators have UV protection and the product can be installed outside without protection. Although, Pumatronix recommends installing illuminator with some sort of support that covers it, protecting illuminator from vandalism and direct case sunlight exposure. This protection can prolong illuminator lifetime far from warranty time.

It is possible to develop the support that protects illuminators from vandalism and sunlight or buy it from Pumatronix. It is also possible to require the Pumatronix model technical specifications to manufacture it in a proper dealer.

4 Electrical Specifications

Power supply	24 to 35Vdc	
Stand By consumption	5W	
Mean current (maximum shot cycle)	WHITELUX-VIDEO	400mA
	ITSLUX150/ SUPERLUX 150	750mA
	ITSLUX300/ SUPERLUX300/ GREENLUX/ WHITELUX	1,5A
Peak Current	ITSLUX300/ SUPERLUX 300	3,0A
	ITSLUX150 SUPERLUX 150	1,5A
	WHITELUX *GREENLUX*	5,0A
	WHITELUX-VIDEO	800mA

5 Status LEDs

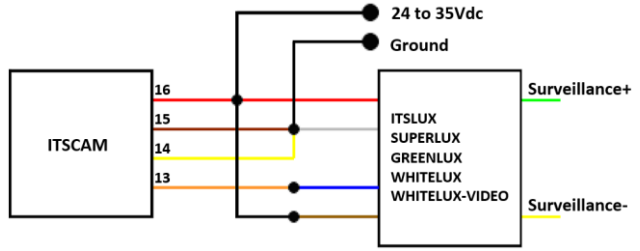
On the illuminator front panel, two LEDs indicate its operation. These LEDs are red and yellow. The red LED lights during every shot.

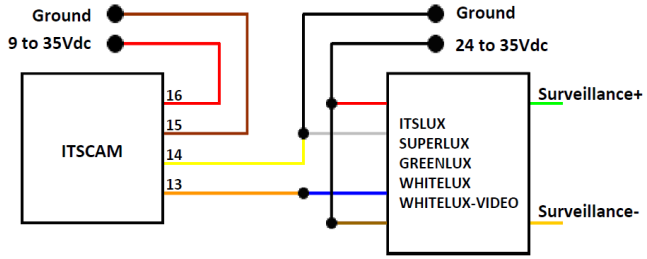
When the illuminator turns on, the yellow LED blinks for approximately one minute to indicate that the illuminator is correctly loaded. Yellow LED also indicates when a trigger is required during the Protection Time.

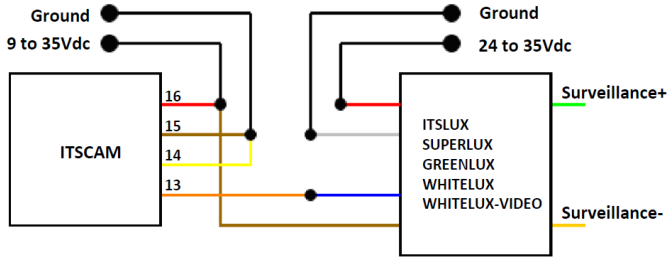
6 Connections

ITSLUX, SUPERLUX, GREENLUX, WHITELUX and WHITELUX-VIDEO illuminators have the same connecting scheme and there are three options for connecting them with ITSCAM, according to chosen power supply.

Terminal	Signal	Description
Red	V+	24 to 35Vdc power supply
Gray	GND	Ground
Yellow	OUT1-	Negative surveillance output
Green	OUT+	Positive surveillance output
Brown	IN+	Positive trigger input
Blue	IN-	Negative trigger input

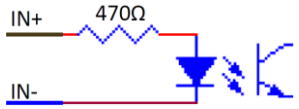




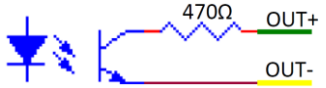


6.1 Inputs and Outputs

The isolated trigger input (IN) of ITSLUX, SUPERLUX, GREENLUX, WHITELUX and WHITELUX-VIDEO has a circuit that allows the connection of capturing equipment other than ITSCAM but compatible with the input.



After a shot request, ITSLUX, SUPERLUX, GREENLUX, WHITELUX and WHITELUX-VIDEO emit a signal indicating a successful shot. This signal can be monitored using a circuit compatible with the isolated surveillance output.

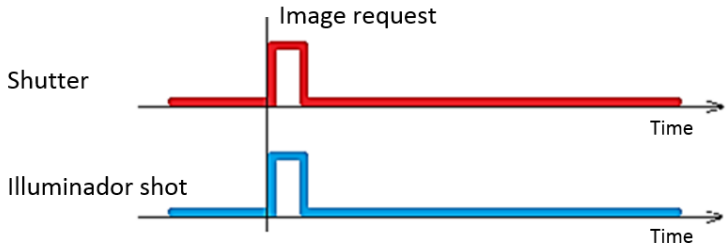


7 Firing

The ITSLUX, SUPERLUX, GREENLUX, WHITELUX and WHITELUX-VIDEO illuminators emit light during the period in which the input signal is high up to the limit time, as shown:

Illuminators maximum firing time	
ITSLUX, SUPERLUX and WHITELUX-VIDEO	2ms per shot
GREENLUX and WHITELUX	Sum of shot lengths limited to 16ms

When connected to ITSCAM, illuminator firing occurs during the exposure time of the image sensor (shutter).



There is a real delay of 50µs until the effective light emission, when illuminators receive trigger signal. This slight delay affects only the snapshots with shutter below 250µs. In situations with very little shutter, it is recommended to correct this effect by assigning a delay in taking the picture, so the peak of light can be joined. When ITSCAM operates under these conditions, just set the flash output with a delay of 130.

Situations in which shutter is greater than 250µs, it is recommended not to use delays. More information about the use of ITSCAM can be found in the Datasheet available at www.pumatronix.com.br.

The firing ability that each illuminator has is presented below. The table uses common shutter values. Intermediate values can be calculated with the desired firing time and the required protection period for each type of illuminator.

Maximum amount of single flashes per second			
Shutter	**ITSLUX SUPERLUX**	**WHITELUX GREENLUX**	**WHITELUX-VIDEO**
1/60	Not allowed	0,2	Not allowed
1/100	Not allowed	0,4	Not allowed
1/250	Not allowed	1	Not allowed
1/500	4	2	16
1/750	6	3	22
1/1000	8	4	30
1/1500	12	6	45
1/2000	16	8	60

7.1 Multiple Firing with ITSLUX, SUPERLUX, WHITELUX and GREENLUX

ITSLUX, SUPERLUX, WHITELUX and GREENLUX have a system of up to four shots with different intensities, however the image capture device must be ITSCAM. Check ITSCAM Datasheet for more information.

Shot	Pulse width of illuminator with ITSCAM 40x
1º	ITSCAM shutter
2º	20µs

3º	40µs
4º	Configurable

Shot	Pulse width of illuminator with ITSCAM 41x
1º	ITSCAM shutter
2º	Configurable
3º	ITSCAM shutter
4º	Configurable

7.2 Protection Time

Pumatronix illuminators have a protective mechanism that limits firing to preserve LED integrity and to increase product durability. The protection time counting starts at the end of a shooting and varies according to the illuminator model.

WHITELUX-VIDEO does not support multiple consecutive firing during the protection time. If new requests are done during the protection time, only the yellow status LED blinks. The protection time is always multiple of time that the illuminator was triggered (respecting the maximum activation time of each equipment).

Protection time formula for WHITELUX-VIDEO
32 X firing time

Using ITSLUX, SUPERLUX, WHITELUX or GREENLUX it is possible to perform up to three shots during the guard time. In this case, the protection time is the sum of multiple shots performed. The multiplier factor for ITSLUX and SUPERLUX is 128 and the factor for WHITELUX and GREENLUX is 256.

Protection time formula for ITSLUX and SUPERLUX
128 X sum of firing time (from 1 to 4 shots)

Protection time formula for WHITELUX and GREENLUX
256 X sum of firing time (from 1 to 4 shots)

Some examples of protection time that illuminators need, for single or double shots with equivalent shots, are presented based on the shutter:

Protection time for illuminator with unique shot			
Shutter	ITSLUX SUPERLUX	WHITELUX GREENLUX	WHITELUX-VIDEO
1/60	Not allowed	4,2s	Not allowed
1/100	Not allowed	2,5s	Not allowed
1/250	Not allowed	1,0s	Not allowed
1/500	256ms	512ms	64ms
1/750	170ms	341ms	43ms
1/1000	128ms	256ms	32ms
1/1500	85ms	170ms	22ms
1/2000	64ms	128ms	16ms

Protection time for illuminator with double shot of equal time (second shot during protection time)		
Shutter	ITSLUX e SUPERLUX	WHITELUX e GREENLUX
1/60	Not allowed	Not allowed
1/100	Not allowed	Not allowed
1/250	Not allowed	Not allowed
1/500	512ms	1024ms
1/750	341ms	682ms

1/1000	256ms	512ms
1/1500	170ms	340ms
1/2000	128ms	256ms

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