



Flashlight BLZ2010

valid for Flashlights from Serial Numbers 6 to

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A. Flashlight for the Web Break Camera System on your PM?

Your Problem

- You are unhappy with the details in your pictures?
- Is the Spotlight glass calcified?
- Are the big Spotlights in your way?
- Are they using too much power?

Our solution

- Retrofit our LED Flashlight on your system (analog or digital video signal)!
- No calcifying because there is no heat!
- Much smaller housing!
- Only about 5% power demand compared with a metal halide lamp!





B. Product specification Flashlight BLZ2010

B1. Specification:

- Aluminum housing
- Protection class: IP 65
- Dimensions: (BxTxH) 225 x 160 x 90mm
- Weight: 3,4 KG
- Light emission:
 - Comparable to a 1000Watt Metal Halide Spotlight
 - Up to 27,500 Lumen
- Laser Class 1. Do not look into the light as it may cause damage to the retina!
- Power Demand: 26V= / 0.5A
- Cooling air: Oil- and water free, 20...150 L/min (depending on the ambient temperature), 4..7bar, PVC pipe with 8mm outer diameter
- Maximum inner housing temperature 50 degrees Celsius. LED will turn off automatically.
 - Red LED under the glass displays over-temperature
 - Green LED under the glass displays ready state
- Flash duration
 - Fixed 300uS → about 1/3,000 second
 - Variable 50...300uS → 1/20,000 bis 1/3,000 second
- Trigger type
 - Digital e.g. for GigE cameras
 - Analog e.g. for Line Locked analog cameras
- Manual cleaning as required
- High efficiency¹
- Well suited for retrofit of existing systems. The picture quality will improve significantly; replacement of the whole camera system not required, making the project a lot less costly.

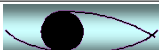
B2. Scope of supply:

- Spotlight
- 2 Plugs for power supply and trigger
- Installation manual

B3. Not included:

- 26V= power supply
- Supports (must be designed to your needs)
- Installation
- Start-up testing

¹ Power consumption of a 1,000W Metal Halide Spotlight in 24h → 24,000Watt
Power consumption of the Flashlight in 24h → 125Watt





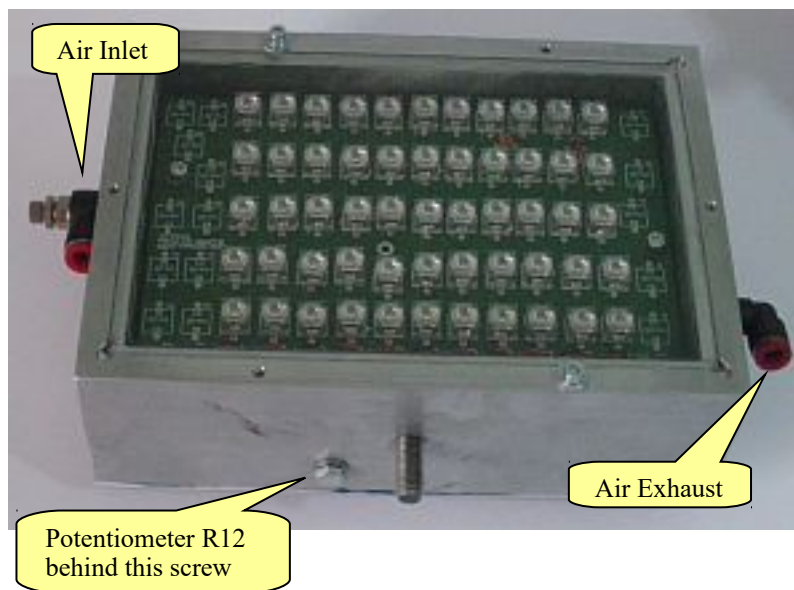
B4. Installation and Maintenance:

- Fix the spotlight using the two M10 threaded bolts
- The light power is dependent on the glass cleanliness
- Do not use sharp tools such as knives, scrapers etc. because they make scratches on the glass
- Citric Acid is a suitable decalcifier.

B5. Notice:

- Modifications to the Specifications may take place any time without prior notice

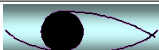
B6. Front view:



B7. Rear view:



Socket #4 only up to serial number 10.

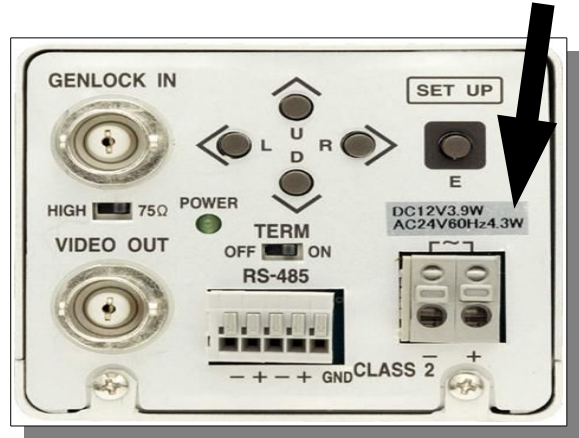
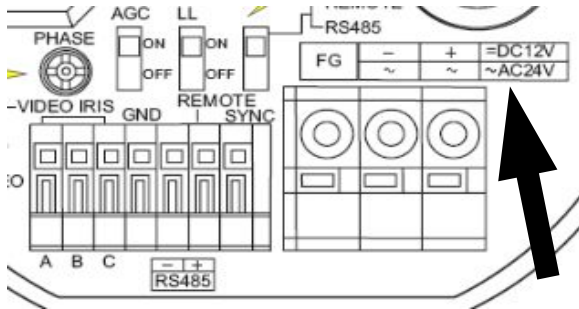


B8. Requirements to your camera having an analog video signal cable:

The camera must fulfill these requirements to enable the flashlight to flash synchronously

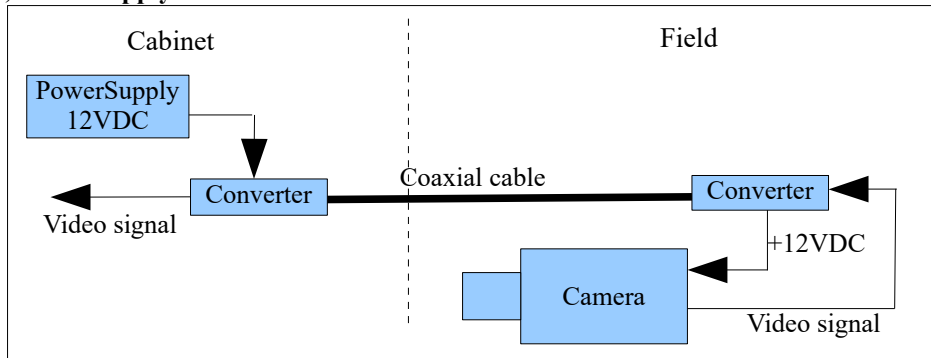
1. The camera must be able to operate on AC current. See label on your camera to find out if it has this option.

Examples:

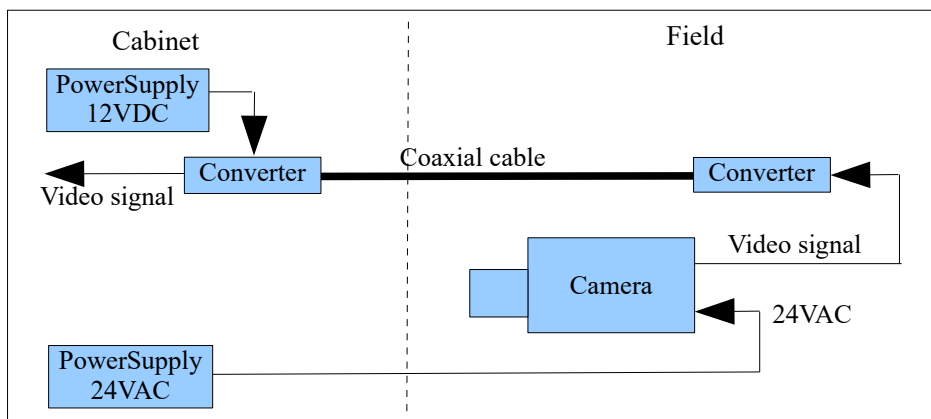


Some Web Break System suppliers combine video signal and power supply over the coaxial cable. This will only work with DC, nevertheless many of these cameras also can take AC current. The combined vide/power solution must be split (see graphic below).

Example, Power supply via coaxial cable

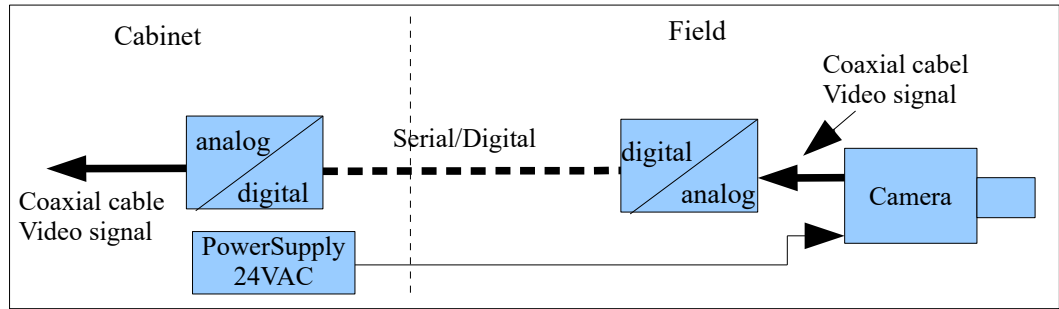


Power Supply via separate cable (after modification)

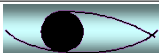




Some Web Break System suppliers use a serial protocol for the analog video signal. This has no effect on our requirements.



2. The camera must have the „Line Lock“ feature. Practically all cameras that can handle AC power supply, have this feature.





C. Installation and Start up of the BLZ2010

C1. Mechanical installation:

A good picture requires good light.

Flashlight should not be more than 4 meters from the web.

Use the two M10 threaded bolts to fix the flashlight.

Cooling air is required if the ambient temperature is more than 30 degrees celsius or if the air in that are is corrosive, such as press or wire section.

Adjust the air intake with the adjusting screw on the air inlet.

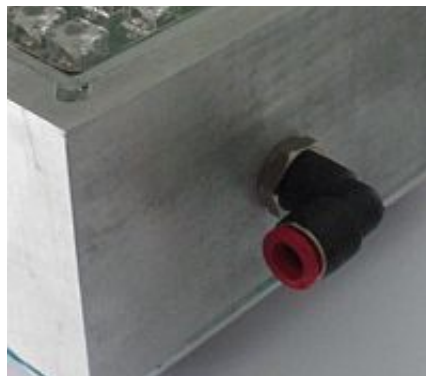
Attention: The air out opening must not be obstructed otherwise the glass may break!

The air outlet should be equipped with a short tube pointing downward so that no liquids penetrate the housing.

If you don't install cooling air; close the input screw and output opening.



Picture 1: Air Inlet



Picture 2: Air Exhaust

C2. Electrical connection:

Plug X1: Power Supply

Pin 1: +26V= / 1A

Pin 2: 0V

Pin 3: not used

Pin 4: PE / Shield





Plug X2: Trigger Input. Shielded cable required (Standard for Analog Cameras)

- Pin 1: Trigger Input +
- Pin 2: PE / Shield
- Pin 3: 0V (Trigger Input -)
- Pin 4: not used

When using a Gig-E Camera: use X2 for the DC power supply to the camera:

- Pin 1: +Ub, Example 9V=
- Pin 2: PE / Screen
- Pin 3: 0V
- Pin 4: not used

The camera housing must have an additional hole for the LAN cable.

Plug X3: Trigger Output (cascade several Flashlights)

- Pin 1: Inner housing temperature, 10mV per degree Celsius. Example: 400mV = 40 Celsius. **Valid from Serial Number 11.**
- Pin 2: 0V (Trigger Output -)
- Pin 3: Trigger Output +
- Pin 4: not used

Plug X4: Inner housing temperature. Valid up to serial number 10

- Pin 1: Temperature, 10mV per degree Celsius. Example: 400mV = 40 Celsius.
- Pin 2: 0V
- Pin 3: not used
- Pin 4: +26V

If your camera has a motorized lens, then rewire X4.

- Remove the standard cable to the control board
- Wire your lens to X4

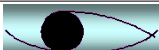
C3. Start-up:

Safety Notice: Do not look into the flashlight as this may harm your retina!

Green LED under glass shows Ready state.

Red LED under glass shows over temperature (>50 Celsius). The LED stop flashing to prevent them from getting damaged.

The standard factory configuration is digital Trigger on a positive Edge





There are some jumpers on the bottom most board:

J1: (Trigger Source) Only for Rev. B, Serial Number 30...

1-2 = Digital

2-3 = Analog

J2: (Trigger polarity)

1-2 = Positive

2-3 = Negative

J7: (Trigger Source)

1-2 = Analog

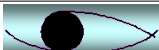
2-3 = Digital

J16: (Light pulse length)

1-2 = Variable

2-3 = Fixed, 300uS

R12: Phase angle (ONLY with analog trigger)





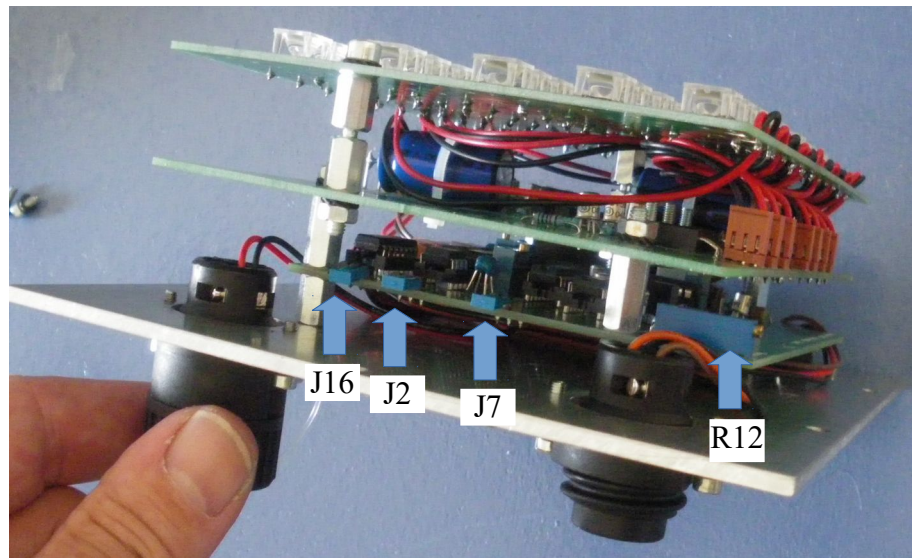
C4. Accessing the jumpers of the Standalone Flash:

1. Disconnect all power and wait 30 seconds for the capacitors to discharge before opening.
2. Remove 6 Torx – Screws



3. Remove the bottom plate including the electronics. The jumpers are on the bottom most board.

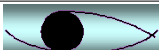
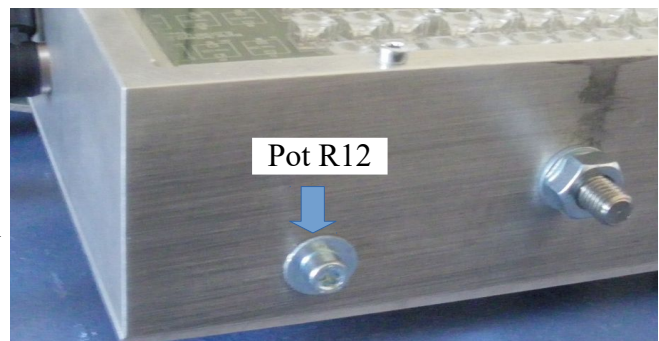
Only Rev. 0.4, up to Serial Number 10



4. Reinstall the bottom plate. Ensure that the seal paste is adequate and that potentiometer R12 is pointing to the M& screw.

5. Tighten the 6 Screws.

Warning: The electrolytic capacitors on the middle board have very high energy! PLEASE do not short them out!



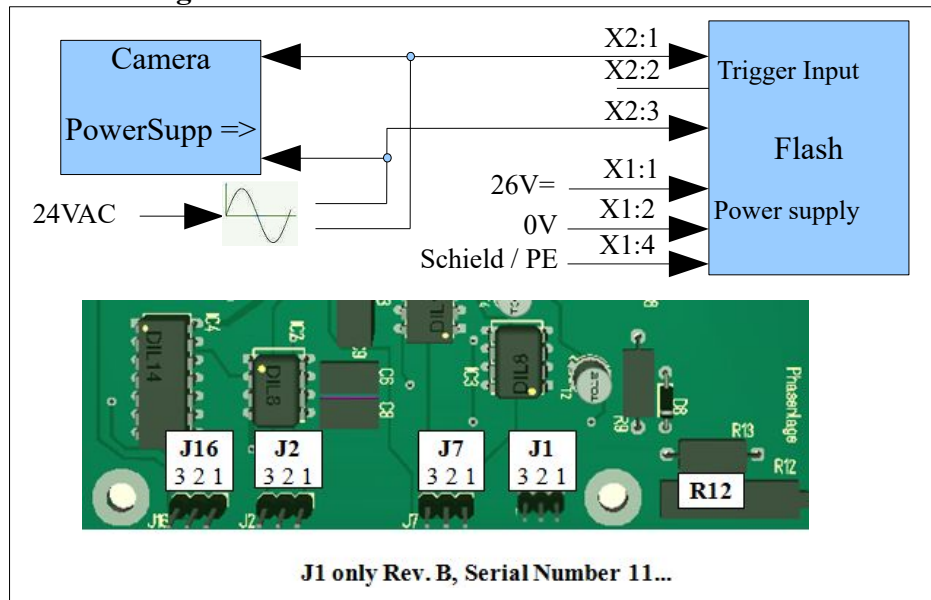


C5 Camera Hookup Examples

Main objectives of the Flashlight installation are:

- Minimize blur due to web movement while taking a picture ==> Set exposure time as short as possible (usually 1/10,000 second).
- Enough depth of focus ==> Set lens aperture number as big as possible.

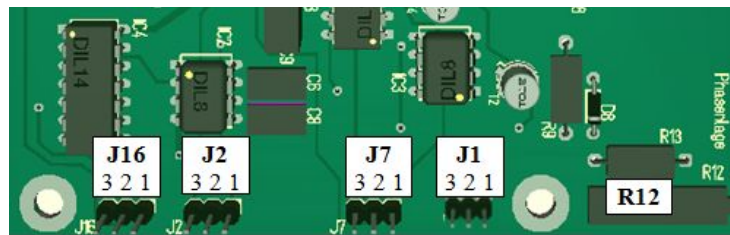
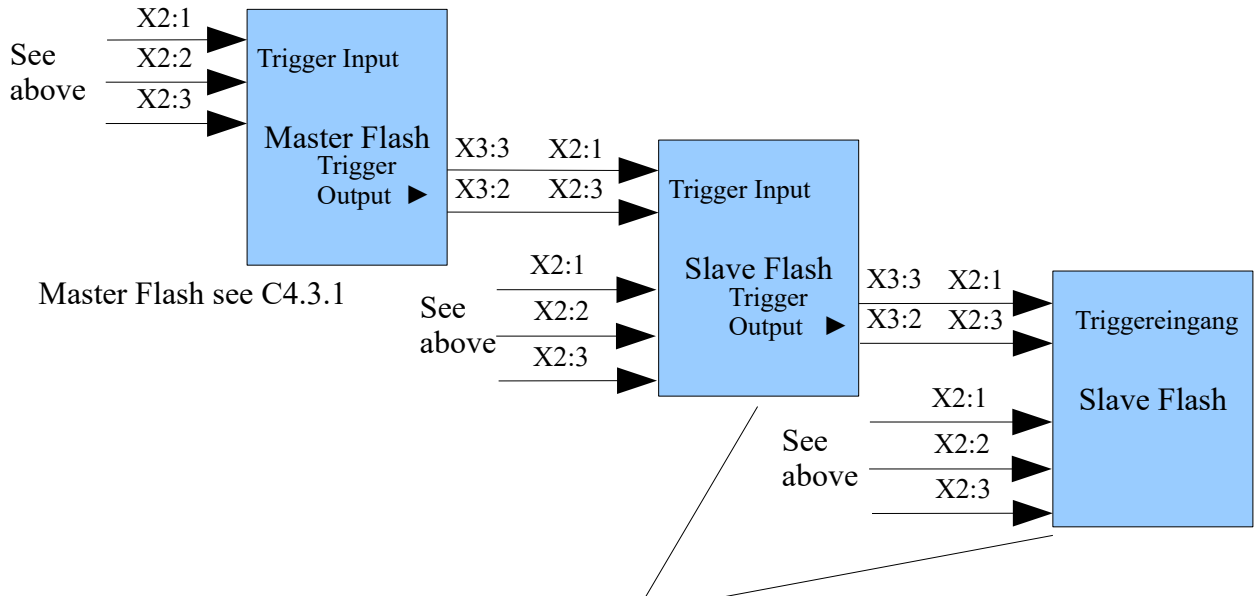
C5.1 Example for an analog camera with Master Flash:



- 1-2) Analog Trigger
- 2-3) Digital Trigger
- 1-2) Analog Trigger
- 2-3) Digital Trigger
- 1-2) Positive
- 2-3) Negative
- 1-2) Variable puls length (Digital Trigger)
- 2-3) Fixed pulse length (Analog Trigger)



C5.2 Example for an analog camera with a slave flash:

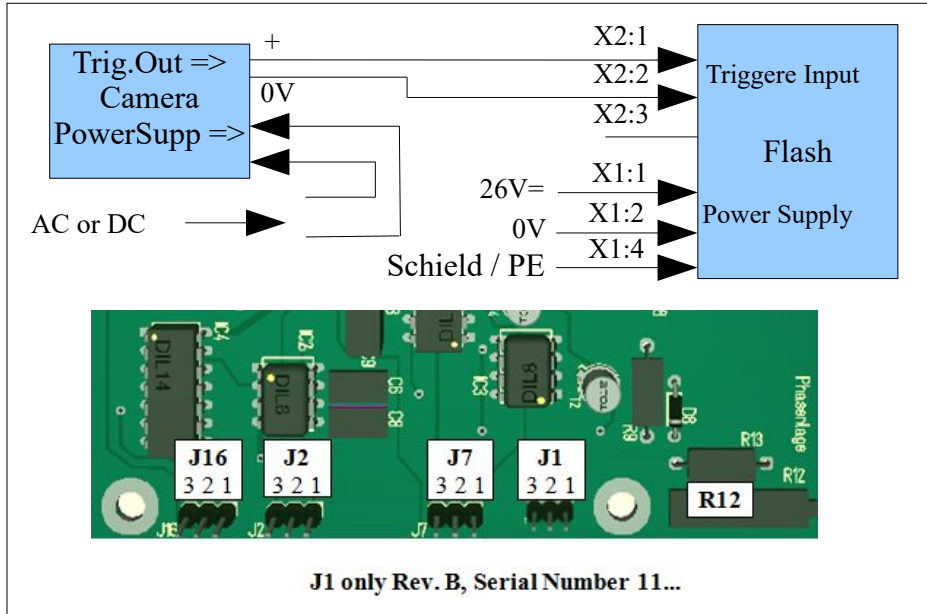


J1 only Rev. B, Serial Number 11...

- 1-2) Analog Trigger
- 2-3) Digital Trigger
- 1-2) Analog Trigger
- 2-3) Digital Trigger
- 1-2) Positve
- 2-3) Negative
- 1-2) Variable pulsl length (Digital Trigger)
- 2-3) Fixed pulse length (Analog Trigger)



C5.3 Example of a digital Prosilica GigE camera:

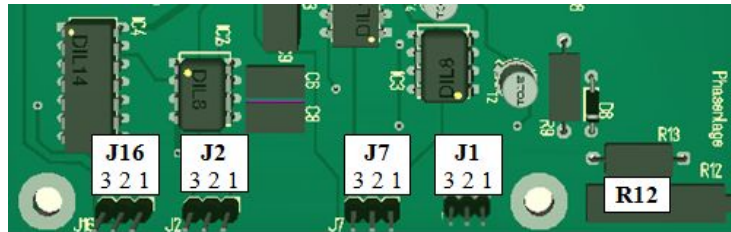
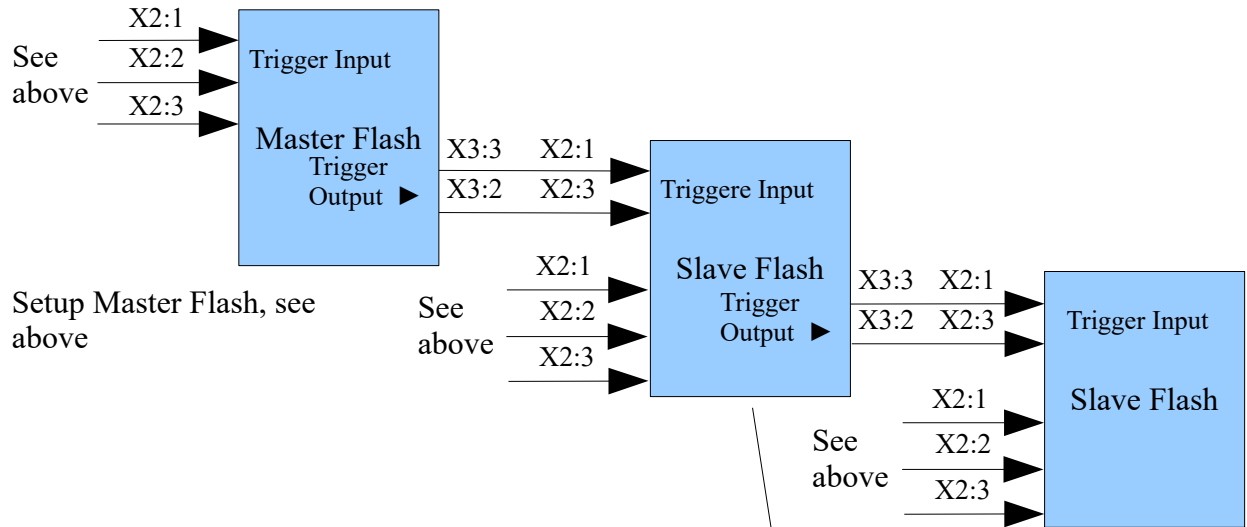


- 1-2) Analog Trigger
- 2-3) Digital Trigger
- 1-2) Analog Trigger
- 2-3) Digital Trigger
- 1-2) Positive
- 2-3) Negative
- 1-2) Variable puls length (Digital Trigger)
- 2-3) Fixed puls length (Analog Trigger)





C5.4 Example of a digital Prosilica GigE camera with slave flash:



J1 only Rev. B, Serial Number 11...

- 1-2) Analog Trigger
- 2-3) **Digital Trigger**
- 1-2) Analog Trigger
- 2-3) **Digital Trigger**
- 1-2) **Positive**
- 2-3) **Negative**
- 1-2) **Variable pulse length (Digital Trigger)**
- 2-3) **Fixed pulse length (Analog Trigger)**





C6. Phase Angle Adjustment:

R12:

Analog cameras are synchronized by triggering synchronously to the zero volt crossing of the (24V) AC power supply. This supply must be connected to input plug X2.

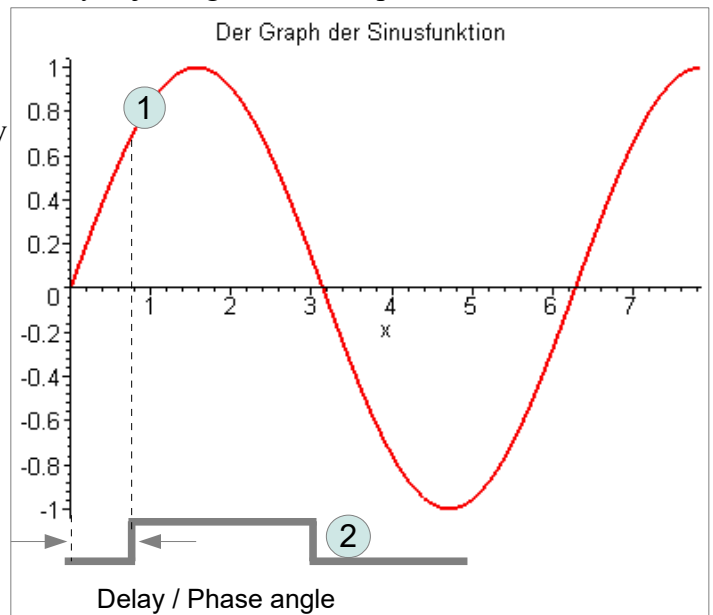
The camera must be set to the „Line Lock“ trigger option.

Many cameras also have phase angle potentiometer to fine adjust this angle.

The flash synchronization can be achieved by adjusting the camera potentiometer or R12 of the flash.

(1) is the AC camera power supply and trigger voltage of the Flash

(2) is the trigger delay. R12 sets this delay



Adjusting phase angle with potentiometer on camera:

1. Set camera exposure time to 1/10,000 seconds
2. Turn pot slowly until camera and flash are synchronous ==> Picture brightness increases significantly
3. Swap wires on plug X1 in case picture does not go bright

Adjusting phase angle with potentiometer R12 on flash:

1. Set camera exposure time to 1/10,000 seconds
2. Turn R12 pot slowly until camera and flash are synchronous ==> Picture brightness increases significantly
3. Swap wires on plug X1 in case picture does not go bright
4. Note position of R12
4. Continue turning R12 pot until picture goes dark
5. Note position of R12
6. Turn R12 to the middle between these two positions

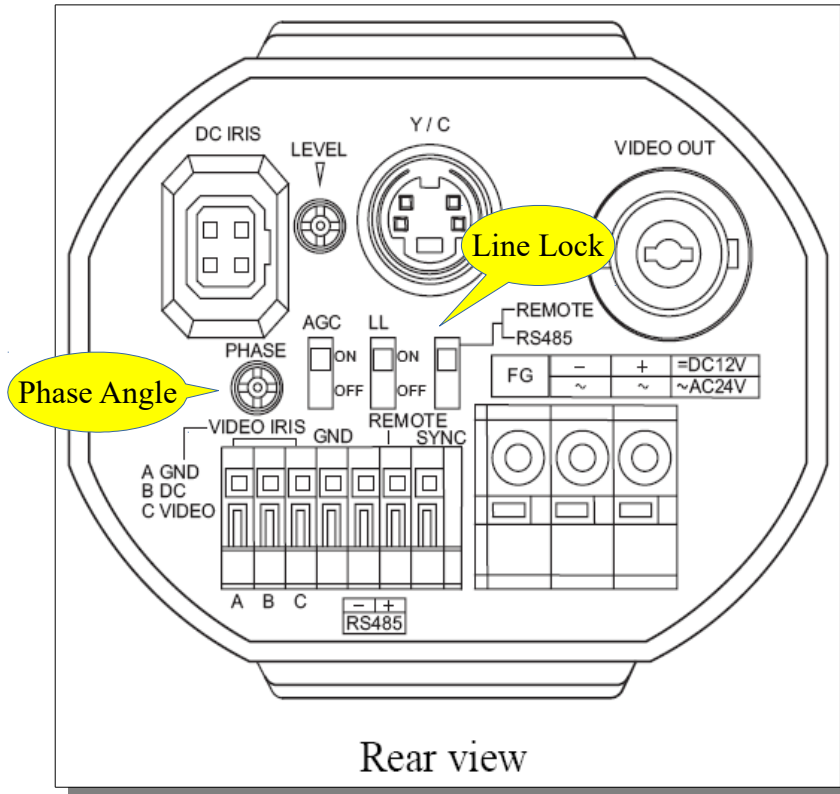




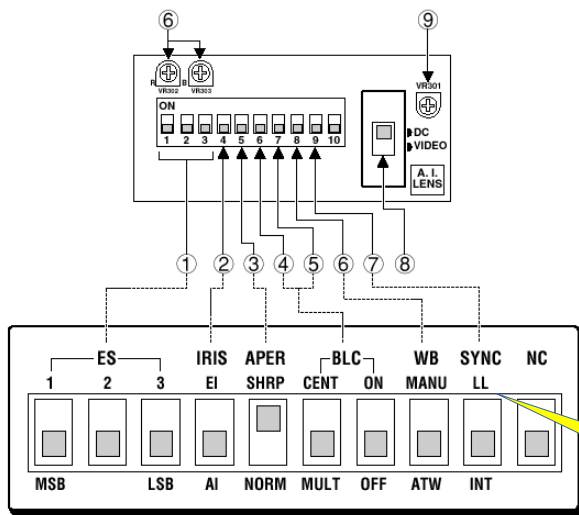
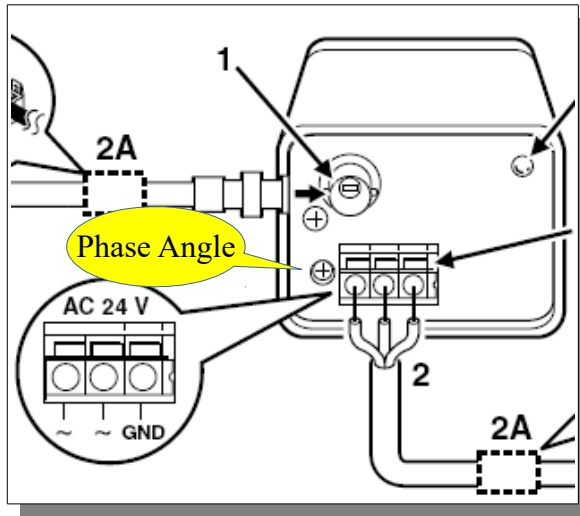
The following examples are for general reference only. See manufacturers manual for exact information!

C7. Analog Cameras:

Example: SIEMENS Color Camera Cerberus® CCBC1315



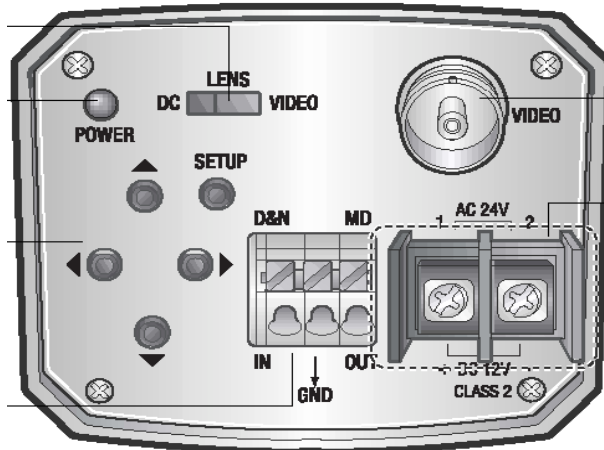
Example: Sanyo VCC6574P B&W Camera



Control name	Position
① High speed electronic shutter (ES) setting	1/50 sec.
② Electronic Iris (EI)/Auto iris (AI) switch	AI
③ Aperture compensation switch (sharp: SHRP/normal: NORM)	SHRP
④ Backlight compensation mode setting (Center: CENT/Multi: MULT)	MULT
⑤ Backlight compensation switch (BLC)	OFF
⑥ White balance switch (WB) and colour (R or B) adjustment volume	ATW
⑦ Synchronisation (SYNC) setting (INT/LL)	INT
⑧ Auto-iris lens switch (A.I. LENS), see page 6	DC
⑨ Lens iris level volume	adjustable

* The sticker on the inside of cover.

Example: Samsung SDN-550 Camera



		SDN-550N	SDN-550P	SDN-550PH
P O W E R	Input Voltage	AC24V±10% or DC12V±10%	AC24V±10% or DC12V±10%	AC230V±10%
	Power Consumption	3.5W		4.0W
C C D	Sensor	1/3 inch, Sony Super HAD CCD		
	Total Pixels	811(H) x 508(V)	795(H) x 596(V)	
	Effective Pixels	768(H) x 494(V)	752(H) x 582(V)	
S Y N C	Scanning System	2:1 Interlace		
	Synchronization	Internal/Line Lock	Internal/Line Lock	
	Frequency	H : 15.734KHz / V : 59.94 Hz	H : 15.625KHz / V : 50.00 Hz	
	Video Output	1.0Vp-p/75Ω (Video 0.714Vp-p Sync 0.286Vp-p)	1.0Vp-p/75Ω (Video 0.7 Vp-p Sync 0.3 Vp-p)	
	Resolution	530 Lines(Color) / 570 Lines(BW)		

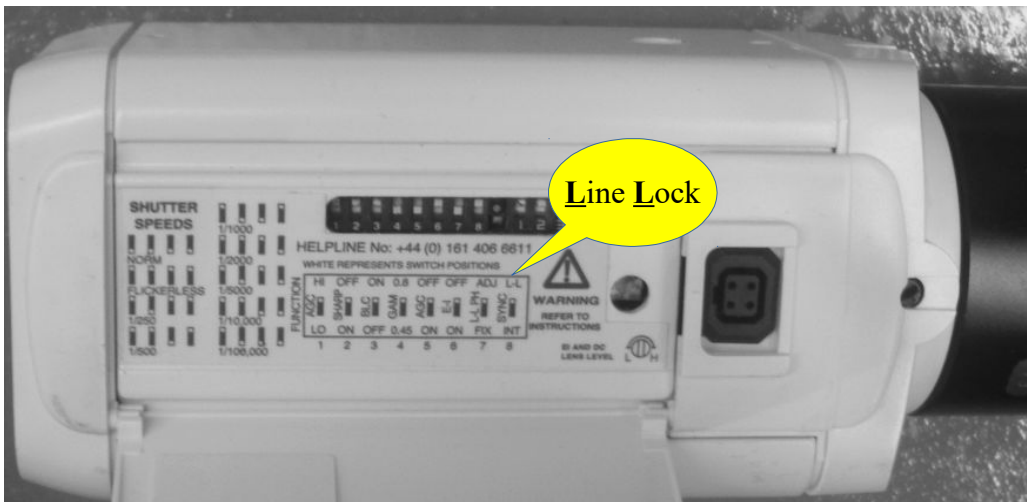
Line Lock



Example: Ikegami with On Screen Display (OSD)

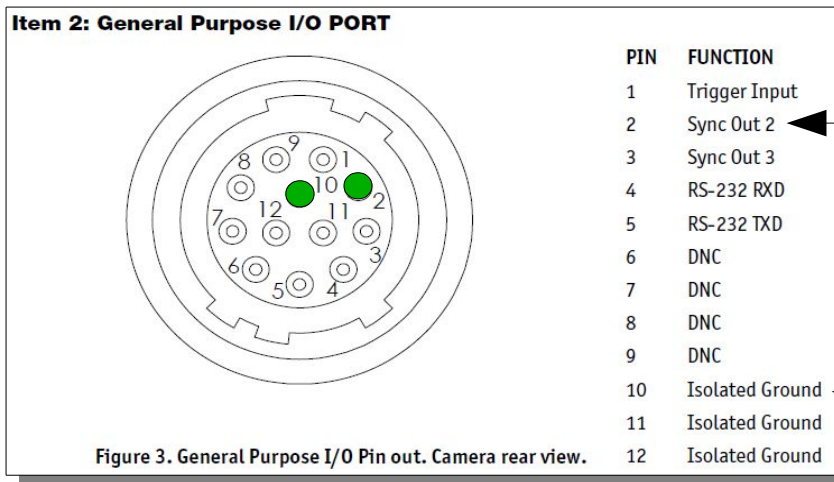
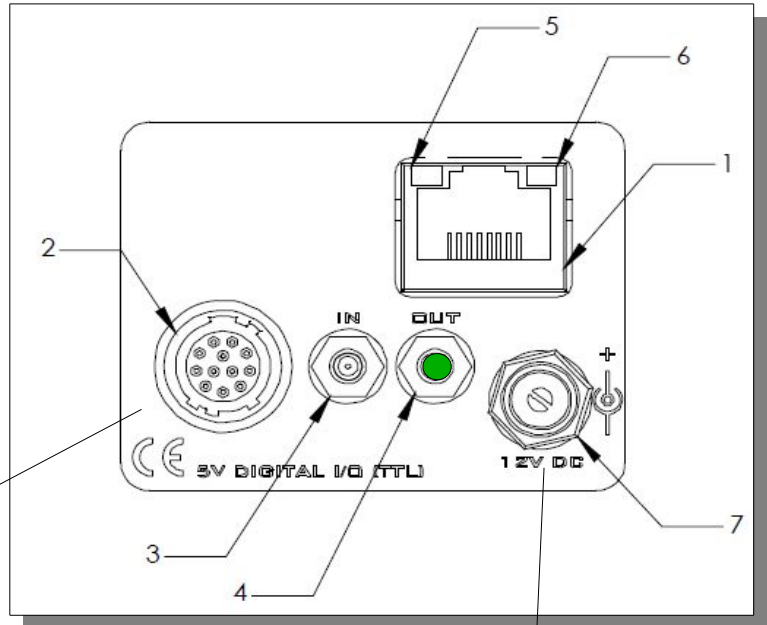
After selecting „LL“, you must set the phase angle. You must select 0 or 180 degrees. 0 degrees are the best option.

Example: Baxall CD9252A



C8. Digital GigE Camera:

Example: Prosilica GE680



+ Trigger output

Trigger 0V

The socket (2) is Hirose HR10A-12SB type. The plug is Hirose HR10A-12P. Conrad Electronic order number: 749394-05

„The Mini-SMB port (4) (Sync Out) on the camera uses an Amphenol 903-406J-51R connector. A suitable mating cable connector is Amp 413985-3 which can be used with RG174 coaxial cable.“

SMB Socket for RG174 Coaxial cable, Conrad Electronic order number: 730954-05