

Introduction

The Ernitec VariCam is a compact high quality colour camera with integrated 10x zoom lens, and auto focus.

Features

- Minimum illumination of 2,5 lux and signal-to-noise ratio of 46 dB by employing a 1/3" CCD image sensor with 752(H) x 582(V) pixels (PAL).
- 450 lines of horizontal resolution.
- 10x integrated zoom lens 5.8 - 58mm.
- Both composite and Y/C video output, which can be used simultaneously.
- Possibility of remote control of zoom and focus.
- Auto focus which can be enabled/disabled.
- Interacting auto iris, electronic shutter and AGC, for best possible image under all lighting conditions.
- Manual/automatic White balance with flicker-less function.
- Backlight compensation.
- State-of-the-art technology using an advanced DSP based circuit.
- Camera mount adapter can be fitted on top or bottom.
- Gen-Lock input for synchronisation of several cameras.
- Optional lens converters: WideCon 4.6 - 46.6mm, or TeleCon 7.5 - 75.4mm.

Precautions

Do not attempt to disassemble the camera

There are no user-serviceable parts inside. Refer servicing to qualified service personnel.

Handle the camera with care



Do not expose the camera to shock and/or vibration. The camera could be damaged by improper handling or storage.

Do not operate the camera in a wet environment.

Take immediate action if the camera becomes wet. Turn the power off and refer servicing to qualified service personnel.

Never aim the camera at the sun.

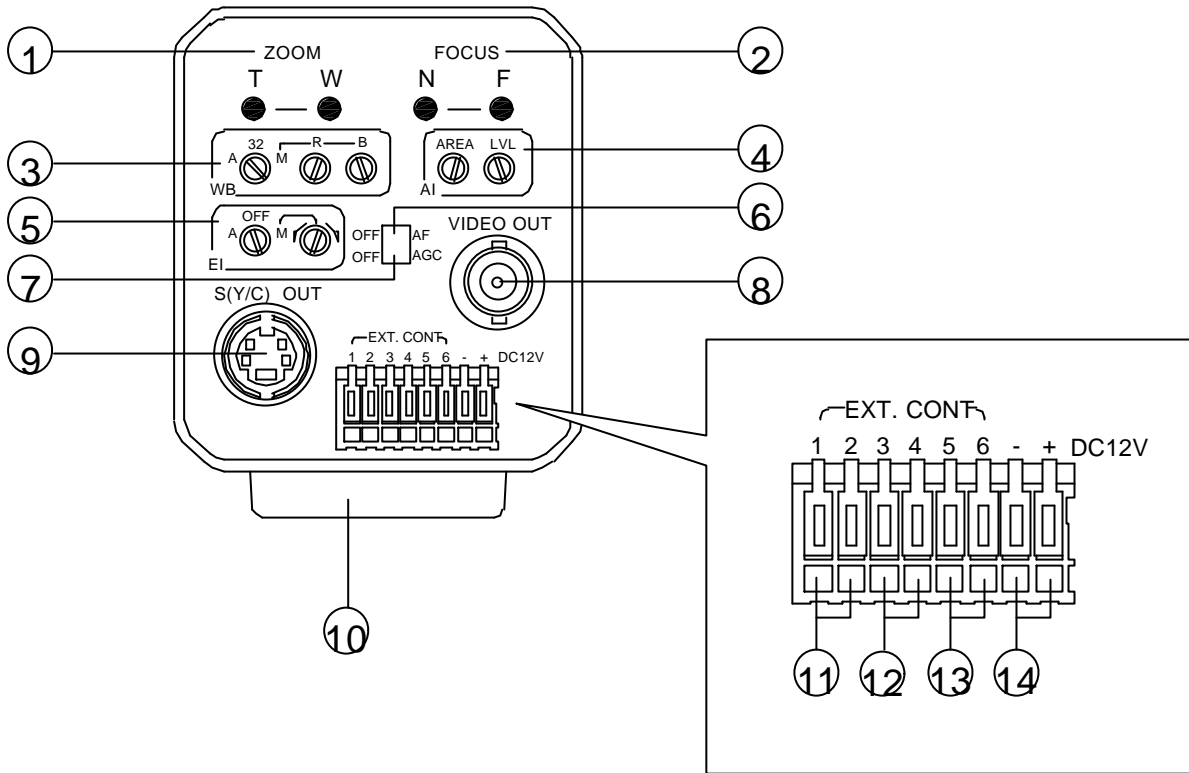
Whether the camera is powered or not, never aim it at the sun. Do use caution when operating the camera in the vicinity of spot lights or other bright lights and light reflecting objects.

 Make sure not to reverse the polarity of the power supply 

Reversing the polarity of the +12VDC(+) and GND(-), may damage the VariCam.

Layout

VariCam



(1)	Zoom control
(2)	Focus control
(3)	White balance adjustment
(4)	Video level and Backlight compensation
(5)	Electronic shutter adjustment
(6)	Auto focus on/off switch
(7)	Automatic Gain Control (AGC) on/off switch
(8)	Composite video out
(9)	Y/C video out
(10)	Camera mount adapter 1/4" -20UNC
(11)	Remote zoom control $\pm 6-12VDC$
(12)	Remote focus control $\pm 6-12VDC$
(13)	Gen-Lock input
(14)	Power supply 12VDC (Not included)

Operating controls

(1) Zoom control switches

When powering up the VariCam, it will automatically go to the zoom position selected prior to power down. In order to store a zoom position, the position must be fixed for at least 4 seconds, before power down.

T: Zoom Tele

W: Zoom Wide

(2) Focus control switches

Only works if the Auto focus switch **(6)** is set to OFF.

At distances closer than 3m the image may defocus if the light level changes. Focus under low light condition (iris fully open) to avoid defocusing.

N: Focus Near

F: Focus Far

(3) White balance adjustment

A: The white balance is automatically adjusted by detecting the colour temperature of the light source, and by controlling the gain of red and blue signals.

32: The white balance is fixed at 3200°K (normally for indoor use).

M: The red and blue signal gain can be set manually by means of the 'R' and 'B' potentiometers.

(4) Auto iris levels

AREA: Back light compensation. The area on the CCD sensor, where the light level is measured can be adjusted by means of the 'AREA' potentiometer.

Centre: Light is measured from all of the image.

Clockwise: Light is measured in the middle of the image.

Counter clockwise: Light is measured at the edges of the image.

LVL: Video level.

Clockwise: Lower video level.

Counter clockwise: Higher video level.

(5) Electronic shutter

Increasing the shutter speed, will decrease the light sensitivity of the VariCam. Also, if the shutter speed increases, there may be visible flickering in the picture. To avoid this, use DC lighting, or high frequency lighting.

A: Automatic adjustment of the shutter speed.

OFF: Shutter speed is fixed at 1/50 sec. in PAL, and 1/60 sec. in NTSC.

M: The shutter speed can be changed manually from 1/50 to 1/30000 sec. in PAL, and 1/60 to 1/30000 sec. in NTSC.

By adjusting the shutter speed, it is also possible to reduce flicker in fluorescent illumination: 1/100 sec. in PAL, and 1/120 sec. in NTSC.

(6) Auto focus

The auto focus circuit uses the latest techniques to always obtain a focused image. However, certain complex images, or low light conditions, may cause problems for the auto focus. In this case, please use the manual focus.

OFF: Focus can be manually adjusted using the focus switches **(2)**, or via the Remote focus control inputs **(12)**.

AF: Focus is automatically adjusted.

(7) AGC - Automatic Gain Control

OFF: Gain is fixed at 0dB.

AGC: Under low light condition, with iris fully open, the AGC circuit can gain up to +15dB, to obtain a clear image.

(8) Video out

Standard composite video output 1Vpp when terminated with 75ohm.

If Twisted Pair Video output is needed, the Ernitec MVT-600 miniature transmitter (optional) fits directly onto the BNC plug of the VariCam.

(9) S(Y/C) video output

Luminance and chrominance separated output for high quality picture with reduced flicker and reduced colour blurring.

Connector pin-out:

Pin 1: Luminance (Y)

Pin 2: Chrominance (C)

Pin 3: Luminance GND

Pin 4: Chrominance GND

(10) Camera mount adapter

The VariCam is designed to be mounted either from the bottom (standard) or from the top. By removing the mount adapter, it can be attached on the top of the VariCam.

Please make sure to use the original fixing screws.

The mounting hole is a standard photographic pan-head screw size 1/4" -20UNC.

(11) Remote zoom control

Input for remote control of the zoom, e.g. via the Ernitec BDR-51X series of Telemetry Receivers .

1: $\pm 6\text{VDC}$ or $\pm 12\text{VDC}$

2: GND

(12) Remote focus control

Input for remote control of the focus, e.g. via the Ernitec BDR-51X series of Telemetry Receivers .

Only works if the Auto focus switch **(6)** is set to OFF.

3: $\pm 6\text{VDC}$ or $\pm 12\text{VDC}$

4: GND

(13) Gen-Lock video input

The Gen-Lock signal for external synchronisation can be one of the following signals:

Composite Black/White 1.0Vpp - 75ohm video signal.

Composite colour 1.0Vpp - 75ohm video signal.

Sync signal 0.3Vpp - 75ohm.

5: Gen-Lock input.

6: Gen-Lock GND.

(14) 12VDC input

Power supply is not included with the VariCam. Any regulated power supply (10-12,5VDC) can be used.

Available Ernitec types are:

PSV-12V , for easy installation in the CHM/CHN camera housings.

VariCam Power Supply, plug-in mains adapter.

PLEASE NOTE: Reversing the polarity of the power supply input may **DAMAGE** the VariCam.

-: GND

+: 12VDC, max. 750mA.

Maintenance

Before commencing any maintenance, make sure that power is switched off.

Camera body

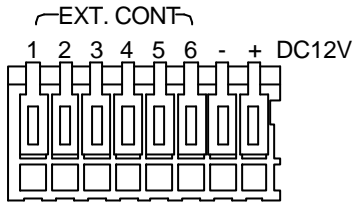
Use soft dry tissue to clean the camera body. If necessary, use a little neutral detergent.

Lens

Clean the lens with a soft brush, or a lens tissue, with a little ethanol.

Installation

Cable connections



The terminal block accepts the following cable dimensions:

Solid wire: 0.32 - 0.65mm

Stranded wire: 0.08 - 0.32mm²

Video cable

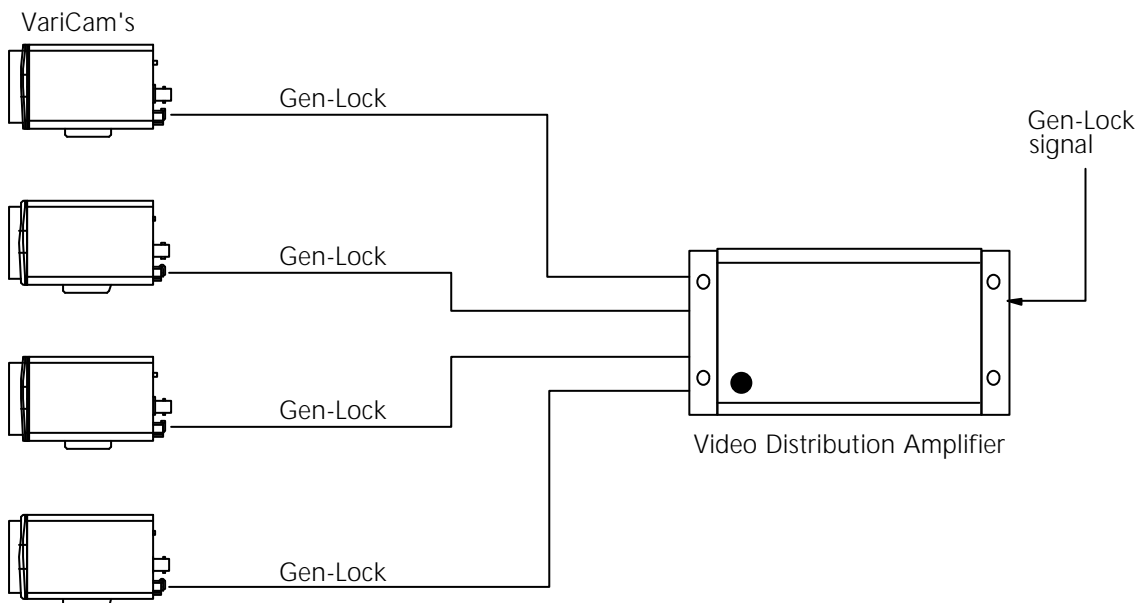
To achieve the full advantage of the VariCam's high resolution, please use a video monitor with a resolution equal to, or higher than the VariCam.

The Video output of the VariCam should be terminated with 75ohm.

Using a standard RG59 coax cable, the cable length should not exceed 250 meters.

Gen-Lock input

Connect the cable for Gen-Lock to the Gen-Lock input. The Gen-Lock input terminates with 75ohm.



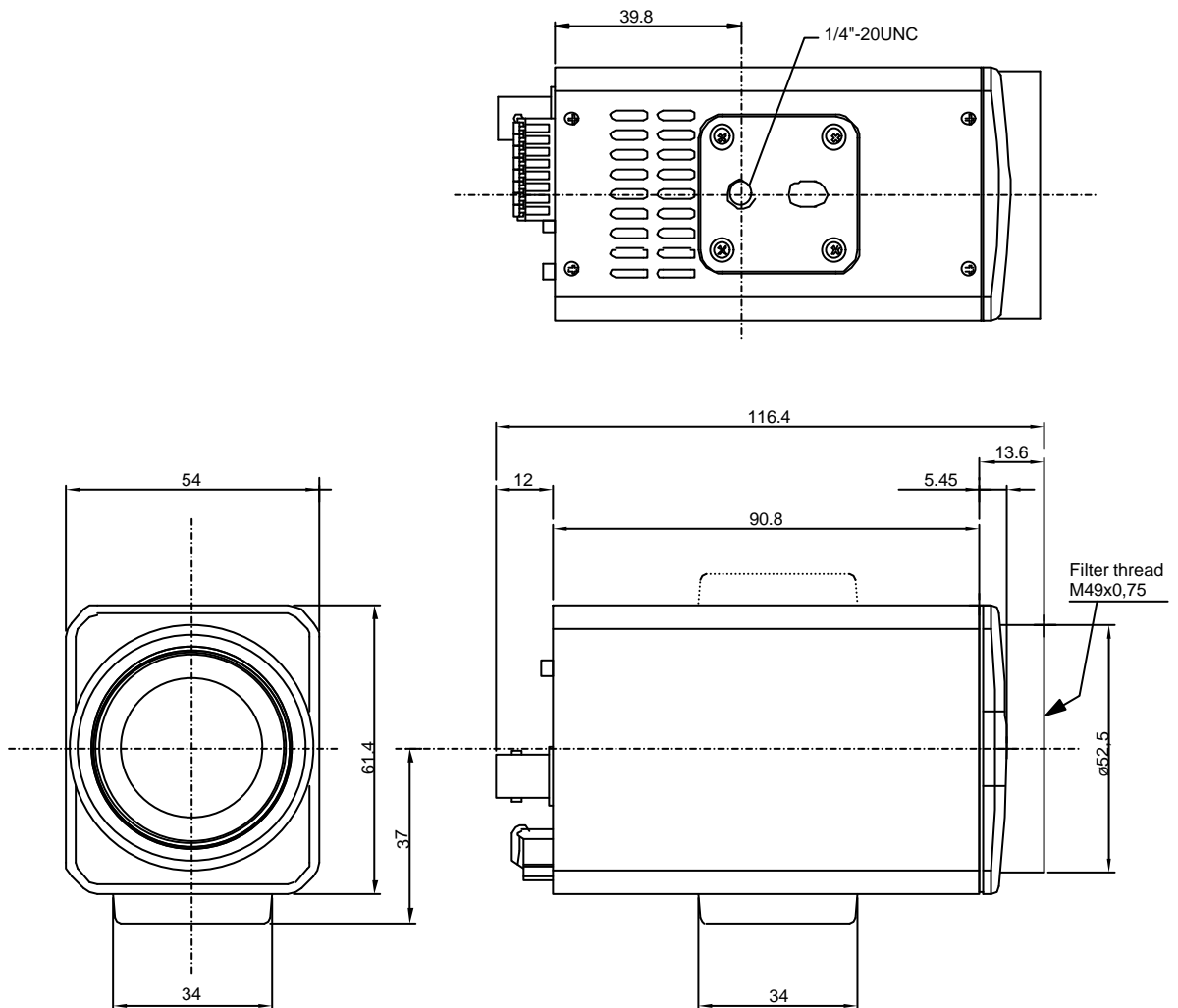
Factory settings

The VariCam is delivered with the following default settings.

Automatic Gain Control - AGC:	ON
Electronic shutter - El:	Automatic (A)
White balance - WB:	Automatic (A)
Auto focus - AF:	OFF
Video level - LVL:	Centre
Backlight compensation - AREA	Centre
Manual shutter - EI/M:	Centre
Manual White balance - WB/M/R:	Centre
Manual White balance - WB/M/B:	Centre

The default settings will provide the best result in most indoor and outdoor applications. Please note that the Auto Focus by default is set OFF.

Outline



Specifications

Camera part

Pick-up device:	1/3" Interline transfer CCD
Effective pixels:	752(H) x 582(V) ~ approx. 440000 (PAL) 768(H) x 494(V) ~ approx. 380000 (NTSC)
Synchronisation:	Internal or external Horizontal sync: 15,62500KHz ±13ppm (PAL) 15,73426KHz ±13ppm (NTSC)
Scanning system:	2 : 1 Interlace
Horizontal resolution:	450 lines (centre / Luminance)
Video output:	1.0 Vpp composite 75ohm negative sync. / BNC
Y/C video output:	Y: 1Vpp negative sync. C: 300mV (PAL) - 40IRE (NTSC)
Signal-to-noise ratio:	>46dB (AGC OFF)
Electronic shutter:	1/50 ~ 1/30000 (PAL) 1/60 ~ 1/30000 (NTSC)
Minimum illumination:	2,5 lux @40IRE (AGC ON)
Gain control:	AGC ON: 0 ~ +15dB AGC OFF: 0dB
White balance:	ON: ATW 2600 ~ 9000°K OFF: 3200°K Manual: 2600 ~ 9000°K
Total aperture range:	F1.8/2.7 (W/T) ~ Closed

Lens part

Focal length:	5.8 ~ 58mm
Max. aperture:	Wide: F1.8 Tele: F2.7
Aperture range:	F1.8 ~ F32 or smaller
ND filter:	1.0 Density (10% transmission)
Angle of view :	Horizontal: 4.7° (T) ~ 45.9° (W) Vertical: 3.6° (T) ~ 34.6° (W)
Focus range:	ZoomWide: 0.3m ~ inf. ZoomTele: 1.0m ~ inf.
Zoom / Focus speed:	3 sec. / 4.5 sec. end-to-end
Filter thread:	M49 x 0,75
Optional lens converters:	WideCon: 4.6 ~ 46.6mm (H: 6° ~ 55°) TeleCon: 7.5 ~ 75.4mm (H: 3.6° ~ 35.5°)

General

Power supply: (Not included)	Nominal 12VDC (10-12,5VDC regulated) (11-12,5VDC unregulated)
Power consumption:	Max. 750mA
Operating temperature:	-5°C ~ +50°C
Humidity:	20 ~ 80% non-condensing
Storage temperature:	-25°C ~ +60°C
Weight:	330g (11.8oz)
Dimensions WxHxL	54x62x117mm
Approvals:	EN-55022/A2 EN-50130-4