



how to use your camera Beaulieu R 16 « Automatic »



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PRELIMINARY DESCRIPTION

1. Battery
2. Power Socket for Camera
3. Handgrip with built in battery
4. Master Control Switch
5. Release Button with Cable Release Socket
6. Isolating Switch for Power Supply to Camera
7. Footage Counter
8. Frame Counter
9. Zero Reset Control for Frame Counter
10. Single Frame Release Socket
11. Signal Generator Socket
12. Turret Locking Catch
13. Remote Release Socket
14. Eyesight Correction Adjustment for Viewfinder
15. Speed Range Switch 24 to 25 and 2 to 64 Frames per Second
16. Speed Control Knob
17. Tachometer for Exact Speed Setting
18. Film Sensitivity and Filming Speed Adjustment
19. Automatic Diaphragm (Regulamatic) Control
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The instructions are intended for the R16 Automatic Model B camera, but they are just as suitable for the R16 B Reflex Control Semi Automatic Mono or Triple Turret Cameras; there are some special instructions which apply to the latter.

To obtain the best results, we suggest that you study the operation of the different controls of the equipment.

DESCRIPTION

1. Battery:

The R16 camera is powered by nickel cadmium batteries. There are two types of battery: the 500 milliamp battery which, when fully charged, power will the camera to take 7100' films at 25 frames per second, and the 1 amp battery which, when fully charged, will power the camera to take 16 films at 25 frames per second. The number of 100' films which can be used depends on capacity of the battery and the speed of the camera.

	No. of films a 2 f.p.s.	No. of films a 25 f.p.s.	No. of films a 64 f.p.s.
500 mA Battery	1	7	14
1 amp Battery	2	16	32

2. 5 amp. Battery

In the case of 200' films in the magazine, divide the figures by two. Filming times will vary depending on the length of film and the filming speed.

	2 f.p.s.	25 f.p.s.	64 f.p.s.
100' Reels . . .	32 minutes	2 min. 30 secs.	1 minute
200' Reels . . .	65 minutes	5 minutes	2 minutes

The electrical consumption diminishes about 50 % between the highest and lowest filming speed. This is because of the time taken for the film to run through the camera at 2 frames per second is much longer than for the time at 64 frames per second.

2. Method of Powering the Camera:

3. Handgrip with Battery Incorporated:

This handgrip will take two sorts of batteries — 500 mA and 1 amp. It also has an isolating switch which cuts off the current from the camera. Different batteries are available for special applications.

4. Master Switch:

It has four positions:

- " Stop " the camera is Switched off.
- " Normal " the camera films forward.

- "Retour" the camera films backwards.
- "Control" Batteries can be tested. The camera will operate as long as the isolating switch is pressed in the handgrip.

6. Release Button (and Cable Release Socket):

There are two positions—when pushed in the film will run through the camera—when pushed in and turned a quarter of a turn in a clockwise direction, it will lock and film continuously. When the switch is released the camera will stop always showing a picture in the viewing system. In the centre of the button there is a thread which will take the cable release.

5. The Isolating Switch:

To disconnect the Power from the camera. This switch has three positions: When the switch is fully extended, no power reaches the camera. When the switch is pushed in the switch is 'on' and the camera will run. The locked position is when the switch is pressed in turned a quarter of a turn clockwise. This is the position in which you use the power grip with the camera on a tripod, or when you use it with a long release. If you accidentally leave the switch in this position, the battery will discharge in 6 hours.

The operation of the camera is entirely controlled by the Master Switch and the Isolating Switch on the pistol grip.

7. The Footage Counter:

The footage counter reads in metres on the top scale and in feet on the bottom scale and indicates the amount of film already exposed. The counter zeros itself automatically when the camera is at reloaded.

8 and 9. The Frame Counter and Reset Control :

The frame counter is graduated zero to 100 and the small wheel allows you to re-set the scale to zero.

10. Single Frame Release Socket:

In order to film at single frame put the cable release into to single frame socket and depress each time you wish to expose with the handgrip switched on and the master switch set to normal.

11. Signal Generator Socket:

This allows a 50 cycle 25 frame or 60 cycle 24 frame signal generator to be screwed in for lip synch sound filming.

12. Turret Locking Catch:

This catch is on all the cameras but is only used on the camera with the three lens turret.

13. The Remote Release Socket:

This enables a remote release cable to be fitted.

14. Eyesight Correction Adjustment for Viewfinder:

This allows the viewfinding system to be adjusted to your individual eyesight.

15. Speed Control Knob:

This allows you to set the camera at any marked speed.

16. Tachometer for Exact Speed Setting:

The purpose of the tachometer is to visually control the speed of the camera and will enable you to set the speed that you require. The first of the red dots on the top line represents 24 frames and the second red dot on the top line represents 25 frames when the speed control is set to 24/25 frames. This control enables an extremely accurate setting most suitable for use with the signal generator for sound filming. When the switch is in the 2-64 f.p.s. position, the scale lower indicates speeds between 8 and 64 f.p.s.

17. Speed Range Switch 24/25 frames or 2-64 f.p.s.:

When switched to the left the speed range can be adjusted to speeds between 2 and 64 frames per second. When switched to the right position the speed range condensed enables the 24-25 frames for sound film shooting, to be set with exerted accuracy.

NOTE: It is recommended that you change the speed selector switch with the camera is switched off.

18. Film Sensitivity and Filming Speed Adjustments:

This control enables you to select the filming speed in accordance with the sensitivity of the film on the usunnd. The control is linked to the light meter system and immediately corrects the sensitivity of the light cell.

19. Housing for Automatic Diaphragm Control:

There are two positions. In the automatic position the diaphragm automatically adjusts itself according to the amount of light on the subject.

In the semi automatic position, the diaphragm can be controlled by manual adjustment, the correct exposure being indicated by the galvino-meter needle being directly over the cross in the viewfinder.

21. Iris Diaphragm Setting Ring:

In the automatic position this ring is driven by the servo motor which is controlled by the transistorised amplifier which translates the variation in light indicated by the light cell in the camera.

In the semi automatic position the ring is operated manually until the needle in the viewfinder is over the cross.

BEFORE YOU FILM

1. Checking the battery :

Before filming it is always a good idea to check the charge in the battery. The equipment for doing this is incorporated in the camera.

- a) Set the master switch to the control position.
- b) Make certain the speed control is in the left position, 2-64 f.p.s.
- c) Switch on the isolating switch and at the same time press the release button. The needle on the tachometer will move into the red zone. Wait for 30 seconds. If the needle returns to the white area there is not enough charge in the battery. You will, therefore, have to recharge the battery.
- d) If the battery is charged re-set the master switch to the normal position, put on the position stop if you do not want to film at the moment.

1. Loading the camera :

Loading the camera is done in shaded daylight:

a) To open the catch on the side of the camera and turn the catch in a direction when the arrow points to 'Q' (J). Take out the take-up when using reel, as you do this the counter re-sets to zero (K). To turn to page 0000 the 200' magazine instructions. Open the film gate (L).

b) Unroll 30" of the 3 films leader. Put the feed reel on the feed spindle, the film coming off the reel at the bottom, in the direction marked on the plate.

c) Insert the film in between the top spindle and the spindle guide. The perforations on the film will fit themselves on the corresponding teeth of the feed spindle. In order to do this, push the edge of the film firmly and turn the camera on.

Check that the perforations are well in the teeth of the feed sprocket (M), and run off some film. Follow the film feed path on the gate and insert it in the gate. Close the gate. If the film has been correctly positioned it will automatically find its place in the gate. Check that this has been done by moving the film up and down slowly.

When the gate is opened the claw is lifted away from the film. When you close the gate the claw is re-positioned and should catch on to the film. Check that this has been done.

d) After having made certain the film is in the gate, put the film in the lower guide and proceed to position as in (c).

e) Put the film on the take-up spool and make certain it is engaged with three or four turns.

f) Make certain the counter has returned to zero. Replace the take-up spool on its axle. Run a few inches to make sure that all is correct and make certain that the feed sprockets are properly laced.

g) Put the side back on the camera and turn the catch to f for closed.

h) Run the film on until the red part of the counter is finished and the zero comes to the line (11).

2. Holding the camera :

When you are using the camera with the handgrip with a built in battery, the photo shows how the camera should be held in the hand. The hand then automatically switches on the isolating switch and the camera is ready to film. To film forward all you need to do is squeeze the release button (make certain that the camera is set to normal on the master switch).

IMPORTANT: If you should stop the camera by using the isolating switch, the electronic circuit may not stop the camera with the mirror in position and there is a risk of fogging the frame. In order to set this right it is necessary for you to push in the release button and squeeze the isolating switch. This will close the shutter without wasting any more film.

The isolating switch is there for safety. In its normal position the camera cannot run or discharge the battery.

3. Adjusting the viewfinder :

- a) Set the zoom lens to wide angle.
- b) Set the focussing distance to infinity.
- c) Set the control button on the Regulomatic to Semi.
- d) Open the diaphragm to maximum.
- e) Point the camera towards the subject at infinity and turn the rim of the eyepiece until the subject appears to be absolutely sharp. The eyepiece is then adjusted to your eyesight. If you normally use glasses,

in order to see more comfortably it is better to use the camera without them as the correction range is from minus 2 to plus 2 dioptres. There is no mark on the tachometer for 2 frames and 4 frames per second. The speeds are marked on the variable speed control and as they are so extreme, tachometer control is unnecessary.

Table Showing the Exposure at the Various Filming Speeds:

2 frames per second	= $1/5$	of a second exposure
4 frames per second	= $1/10$	of a second exposure
8 frames per second	= $1/20$	of a second exposure
16 frames per second	= $1/40$	of a second exposure
25 frames per second	= $1/62$	of a second exposure
32 frames per second	= $1/80$	of a second exposure
48 frames per second	= $1/120$	of a second exposure
64 frames per second	= $1/160$	of a second exposure

6. Adjusting the light meter (filming speeds and sensitivity) :

Set the filming speed chosen against the dial using the A.S.A. rating in the photograph opposite, the chosen filming speed is 16 f.p.s. and the film sensitivity is 50 A.S.A.

It is always possible to set intermediate film sensitivities. The space between each marked setting represents one complete aperture. The spaces between each filming speed marked are equal. To set, for example, a filming speed of 150 A.S.A. you set the speed at an equal distance between 100 and 200 A.S.A.

There is a mathematical relationship between the sensitivity of the film and the speed of the exposure (depending on the filming speed), therefore filming at 16 f.p.s. with a film of 50 A.S.A. corresponds to filming at:

32 f.p.s. with a film of 100 A.S.A.

8 f.p.s. with a film of 25 A.S.A.

The exposure is exactly the same.

IMPORTANT: For filming in conditions of exceptionally dull light with film of 200 A.S.A. at filming speeds of 2 or 4 frames per second, it is necessary to use a separate, very sensitive, exposure meter. When filming at speeds less than 8 frames per second, you must film with the exposure control set in the semi automatic position.

The exposure system is designed to give a perfect exposure under normal conditions of illumination. In difficult lighting conditions (against the light, by the sea, on the snow) it is necessary to make adjustments. This can be done by taking a reading on semi automatic, using the zoom lens in the telephoto position and pointing the camera specifically at the darker areas of the subject which you wish to have exposed correctly. When the sky is very bright and the subject is in shade, the meter will tend to give an average reading. This can be corrected by taking a close up reading in the semi automatic position on that part of the subject which is to be exposed exactly.

If you are filming under conditions where you know that you should alter the exposure by one or two apertures, this can be done on the automatic system, merely by changing the film sensitivity.

7. The automatic aperture setting system :

a) Check that the Regulomatic control is in the position « Auto ».

b) Make certain the isolation switch is pressed on and the camera is connected to the battery.

To obtain the exact position the needle in the viewfinder must remain on the cross in the viewfinder. If the needle is not in the zone of tolerance (see diagram opposite) the conditions of light are not suitable

for filming. If the needle is on the left there is too much light. You can use the neutral density filter in front of the lens or a slightly faster filming speed.

The automatic camera is equipped with automatic lenses, as follows:

Angenieux 4 × 17b

Angenieux 10 × 12

Angenieux 6 × 12.5.

ATTENTION: The automatic camera will take the majority of the C mount lenses and lenses whose mount diameter is not greater than 2" in the first 2 1/2". When other lenses are used, the meter is set on semi automatic. It is quite easy to use the microscope adaptors. When changing the lenses make certain in the case of the 4 × 17b, the Zoom lever is unscrewed. Turn the lens clockwise with the isolating switch in off position.

8. Using the manual aperture control :

Whether you are using a semi automatic camera (mono or turret) or an automatic camera, when you adjust the diaphragm, as long as the needle is within the area of tolerance shown in paragraph 8, the exposure will be correct. The cell is behind the lens and any extension device or filter will make its own exposure correction. It is not necessary to adjust the A.S.A. settings so that if you are using artificial light film in daylight with an 85 filter, set the film to the artificial sensitivity, not to the corrected daylight one.

9. Beaulieu R 16 B reflex control cameras

are equipped with a turret which will take three lenses. To change the lenses, push in the turret locking catch to free the turret. To turn

the turret (it does not matter which way) use the three chrome knobs which are in between the lenses.

The turret locking catch automatically locks the turret when the lens is in the correct position.

The usual range of lenses are as follows:

Normal lens of 25 mm focal length

Wide Angle lens of 10 mm focal length

Telephoto lens of 75 mm focal length.

All lenses of standard C mount film plane distance (17.52 mm) are suitable for mounting on the turret, as long as the rear part of the thread, when set at infinity, is not longer than 3.8 mm. This is because of the thickness of the turret plate.

It is also possible to use the turret camera with zoom and very long telephoto lenses. Owing to their weight, we recommend the turret locking screw. For every heavy lenses, we would recommend the turret strengthening plate.

Mono turret cameras are normally fitted with zoom lenses. Mono and turret Model B Reflex Control Cameras can be converted to automatic cameras as long as the specially adapted zoom lenses are fitted.

10. Focussing :

The viewfinder is adjusted to suit the eye of the cameraman. The subject to be filmed should be framed in the viewing screen, then the focussing control turned until the subject is sharp in the viewfinder and it will then be sharp on the film.

Focussing is easier if the lens is at full aperture.

If the camera is equipped with a zoom lens it is easier to focus if you set the zoom control to the telephoto position.

11. Taking out the film :

When the letter *f* appears at the end of the film counter the film is finished. Continue to run the camera until the *f* has completely disappeared. Open the camera, run the motor until the film is completely on the take-up spool. If you wish to take the film out before it has finished, this can be done by taking out the film guide. This enables you to change a film in mid reel to another sort of emulsion. To replace the film guide, merely push it back until it is secure.

SPECIAL APPLICATIONS

1. Tripod use :

Before fixing the camera to a tripod, do not forget to switch on the isolating switch of the handgrip to the continuous position (turn the button a quarter of a turn clockwise). After use remember to switch off the power.

2. Reverse filming :

Set the master control to the position « Retour ». Filming in reverse for special effects: Rewind the film so that a superimposition or a change of film can be achieved. When winding the film backwards remember to lower the lens. The footage counter and the frame counter enable you to check exactly how much film has been re-wound.

NOTE: Filming in reserve is effective at all speeds but not with the 200' magazine.

3. Single picture filming :

This is for animation or time lapse.

When filming single shot it is necessary to use a tripod and to use the cable release in the special release socket. The exposure times per frame on single picture are as follows:

2 frames per second = $1/5$ of a second

4 frames per second = $1/10$ of a second

8 frames per second = $1/20$ of a second

16 frames per second = $1/40$ of a second

25 frames per second = $1/62$ of a second

32, 48 or 64 f.p.s. = $1/80$ of a second.

NOTE: When you want to film single picture, never put the cable release in a position for continuous filming. There is a danger that you may jam the mechanism.

4. Remote control filming :

This facility is offered by the BEAULIEU camera and is useful to anybody who wishes to keep away from the subject (animal life, children, etc.) or when there is a certain amount of danger (wild animals, automobile racing and aerobatic manoeuvres and scientific experiments, etc.). Put the isolating switch in the locked position and do not forget to cover the viewfinder window.

Filming at long Distance with Mechanical Release :

a) In this case long distance operation is achieved using the cable release or, better by using a pneumatic release or solenoid release connected to the cable release.

b) Filming at a distance with the Electric release: Plug in to the jack plug socket, cover the viewfinder window with blanking screw. Switch the camera release button to continuous run.

c) **Filming at Long Distance with a Radio:** All types of radio transmitters and receivers can be used for this purpose. Put the jack plug into the remote control socket of the camera, cover over the view-finder window, switch camera release button to continuous run, switch on the camera with the aid of the transmitter. The maximum working distance is entirely dependant on the power of the radio. It is recommended to test the equipment before you use it.

IMPORTANT: In radio controlled filming, when the camera stops it is possible that the shutter can be open or closed as the automatic closing circuit only works with the camera release button. Although Regulo-matic Automatic diaphragm control is very quick, if the shutter stops open, the first few frames may be incorrectly exposed. When filming normally with the cable release, the camera always stops with the shutter closed.

5. Micro and macro photography :

The reflex viewing system of the BEAULIEU cameras is very precise both in its focussing and field. Because of this you can easily see the range of depth of focus and also the exact field area.

For macro cine photography there is a set of five extension tubes from 5 mm to 50 mm. With this combination between the camera and the lens you can achieve as wide a range of magnification as you wish.

For micro photography, you use the microscope in the camera without the camera lens. The greater the enlargement you require, the more tubes you can put between the camera and the microscope.

You focus directly through the viewfinder of the camera. The light cell inside the camera is of great use for this type of filming because it is not necessary to calculate any exposure corrections. All you have to do is ensure that the needle in the viewfinder is in the correct position.

6. Sound synchronisation :

The BEAULIEU camera is fitted with a 1 to 1 drive shaft (*b*) on to which a signal generator can be screwed allowing filming with sound synchronisation.

The signal generator gives a 50 cycle pulse at 25 frames per second. This signal is fed by a cable to a tape recorder fitted with a built in signal recording head (Nagra, Uher 1000, EMI L4, etc.). The signal generator puts a signal on the magnetic tape which acts as an invisible perforation on the tape. This is then used by a suitable transfer machine to synchronise the sound with the picture.

In the transfer the 50 cycle signal controls the speed of a recording machine which uses 16 mm perforated tape. The result of the transfer operation is a piece of film with a picture and a piece of magnetic recording tape, both of the same length and both with the same perforations. This can then be projected in a double headed projector, picture one side sound the other, or edited with other material on a double headed editing bench, a final optical track can be made from the 16 mm perforated recording tape, or a magnetic staped print produces with the sound transferred from the perforated magnetic recording tape. For further details consult your BEAULIEU dealer.

7. Using the camera at very low temperatures :

The BEAULIEU R16 will work in a temperature range of minus 30 to plus 65 degrees Centigrade. At temperatures below zero, we recommend that you keep the battery in your pocket while using the extension lead. The battery will lose its power in the extreme cold, but when warmed in your pocket, or when taken back to a warm room, its power will return.

When using the handgrip with the built in battery, we suggest you use the dummy battery pack and the extension lead with the battery in your pocket.

NOTE: The isolation switch will not be in the circuit so remember to set the master switch to stop between filming sequences.

USING THE ACCESSORIES

1. Charging the batteries from the mains :

The re-charging of the handgrip batteries from the mains is always done by one of two chargers. A small charger, 50 mA for the 500 mA battery, 90 mA charger for the 1 amp battery or the Universal Charger for any other type of battery which may be available to you.

NOTE: Never charge the 500 mA battery with the 90 mA charger.

a) Recharging the battery on the Camera: Check that the voltage on the charger is set to the mains current (110 volts to 220 volts AC). This setting is not critical within 30 volts on either side of the marked figure. Unplug the lead from the power socket to the camera.

Plug the lead into the charger.

Switch on the isolating switch to the continuous position (turn clockwise one quarter of a turn). Connect the charger to the mains.

The normal charging rate on the chargers is 15 hours for a full charge (it takes more than 25 hours before you are in danger of damaging the battery).

b) Recharging the Battery off the Camera: Check that the voltage on the charger is set to the mains current (110 volts to 220 volts AC). Screw the battery to the charging box. Plug the charger into the charging box. Connect the charger to the mains.

2. Charging the batteries from DC current :

You can charge the batteries from different 12 volt sources (car, boat, aeroplane, etc.).

The charging can be done by 2 special chargers, 50 mA and 90 mA. D.C. Screw in the battery to the charging box or on the handgrip, as previously shown. Connect the charger plug then connect the lead of the charger to the 12 volt source with the crocodile clips (the special circuit of the DC charger enables you to connect the leads any way as the diode circuit automatically gives the right polarity). Charging time is about 15 hours.

In order to look after your batteries, we recommend that you charge them once a month when not in use. Always remember to recharge the batteries after filming as this keeps them up to full power.

3. Instructions for the 200' magazine :

Feed Spool

Take up Spool

Automatic Torque Motor

Feeler Arm for Footage Counter

Mounting Socket for the Camera

Electrical Contacts for Torque Motor

Feed Roller for Film

Locking Catch for 100' footage Counter, when using 200' Magazine.

Feed from Camera to Magazine.

Preliminary technical instructions

The torque motor incorporated in the magazine is driven by the camera battery. (The connection between the camera and the magazine is by pressure contacts).

Fitting the magazine to the camera

1. Undo the two screws which hold the cover plate on the camera (*d*) and lift off the cover plate which is only of use when filming with 50' or 100' reels.

2. Put the magazine on the camera in place of the cover plate and screw down the two locking screws on the magazine (*d*).

NOTE: The door on the magazine should be on the same side as the door on the camera.

3. In order to film with the greatest comfort the position of the 200' magazine can be adjusted backward or forward (*e*). It is then possible to adjust it to the most comfortable position. In order to do this the two screws can be firmly tightened after adjustment.

Hold the camera in your hand.

Rest the 200' Magazine on your forehead.

Adjust the position of the magazine (forward or backward).

Tighten down the locking screws.

Loading the magazine and the camera

Loading is done in shaded daylight.

1. When filming with the 200' magazine you cannot use the footage counter in the camera. It must be switched off. For this purpose there is a small rod marked W which is fixed in the hole marked Y.

2. Take the film guide roller of the 200' magazine and put it on the feed roller of the camera (*g*). (The edges of the film will rub against the roller).

3. Open the side of the magazine and the side of the camera.

4. Put the feed roller for the 200' magazine on the top spindle of the camera. The film is then fed through the top.

5. Put the end of the film between the two feed rollers of the magazine and put it into the camera unrolling about 18' of film (*f*).

6. Feed the film through the feed sprocket and film guide into the gate and then thread the film as in the camera operating instructions (*h*).

NOTE: When you put the film on the feed sprocket and through the gate on to the take up sprocket, it is easier if you run the camera at the same time. Make sure that you push the side of the film so that it feeds sideways on to the perforations.

7. Lift up the arm of the footage counter in the magazine by pushing it towards the left (*j*). It will lock on the central pivot and enable you to take out and lead the take up spool. The footage counter in the centre of the magazine will tell you the amount of film left for use (figure page 22).

8. Thread the film back into the magazine, taking it on the right of the film guide roller and in between the two rollers of the magazine (*k*).

Take the take-up spool off its spindle. Check that the film is taking up properly by running the camera.

9. After closing the camera and the magazine, run the camera for several seconds to make certain the film is taking up well.

10. Instructions for the rubber plug with the magazine : The black rubber plug comes with the 200' magazine and is designed to make changing of magazines a speedy operation.

The system enables a very quick magazine change; the loading is made much easier by putting the film in the camera and using the rubber plug to ensure that the film does not go back in the magazine.

NOTE: The magazine does not allow reverse winding. After using the 200' magazine do not forget to put the cover plate on the camera for 50' and 100' lengths.

MAINTENANCE:

1. Lenses :

The surface of the lenses must be very clean. The outside glass should be cleaned with a very clean tissue without any moisture.

After filming always replace the lens cap over the lens.

2. The gate :

Clean the gate frequently, after every three or four films with the aid of the special cleaning tool supplied with the camera. When the feed spindle is removed the pressure plate can be pulled back sufficiently to allow access. Make certain that the film path and focussing screen are free from emulsion dust.

3. Reflex viewing :

The reflex mirror is behind the lens turret. Take off the lens and, using the blower, remove any dust or film powder. Never use any pressure on the mirror or screen.

4. Lubrification :

Lubrication is unnecessary. After about three years, or less depending on the amount of running time the camera is given, we recommend that it should be returned to a BEAULIEU dealer who will then service it for you.

NOTE: The serial number of the camera is visible underneath the hand-grip, on the inside of the camera near the gate.

ELECTRICAL FEATURES

Amperage and Voltage: The consumption of the camera depends on the filming speed. It is as follows:

400 mA a 2 frames per second

900 mA a 64 frames per second.

Operating voltage 7.2 volts, as much as 8 volts without any damage.

Never use the camera from the mains, even though it is possible to purchase a rectifier. The particular circuit of the camera has to have a very smooth DC current for the camera to function correctly.

Wiring of the Plug: These numbers are on the inside of the male plug:

Positive Pole No. 3

Negative Pole No. 1

Half Hour No.2.

The Company reserves the right to make any modifications to the camera described in this instruction manual.