

 BCF solutions Inc.



LONG RANGE OBSERVATION KIT USER MANUAL

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Table of Contents

Long Range Observation Kit Description	2
LROK Assembly	3
Assemble the Tripod.....	3
Assemble the Telescope and Camera	3
Using the Magnification Lenses	5
Power and Video Connections.....	6
Troubleshooting.....	7
Contact Info/Tech Support	8
Replacement Parts	8

Table of Figures

Figure 1: LROK Layers	2
Figure 2: Assembly of the Tripod Base.....	3
Figure 3: Assembly of the Tripod Head	3
Figure 4: Connecting the Telescope	4
Figure 5: Attaching the Red Dot Viewfinder	4
Figure 6: Pull out focus and remove lens caps on both ends.....	4
Figure 7: Attach the camera.....	5
Figure 8: Inserting the Shorty 2X Magnification Lens.....	5
Figure 9: Inserting the Tri-Mag 3X Magnification Lens.....	5
Figure 10: Connect Power and Video on the Camera Side	6
Figure 11: Connect Integrated Cable to LCD Unit.....	6
Figure 12: Connect Power and Video to LCD Side	6
Figure 13: Plug Universal Power Supply into Provided Surge Protector.....	7

Long Range Observation Kit Description

The Long Range Observation Kit (LROK) is a standalone kit that provides all the components needed for long range observation under normal and low light conditions. Each kit consists of a low-light camera, a telescope lens, several magnification lenses, an LCD monitor, a precision-control tripod, and associated cabling and hardware.

The LROK telescope in its standard configuration provides a 600mm lens at f/7.5. With the 2X Barlow lens installed the telescope acts as a 1200mm lens at f/15. With the Tri-Mag 3X Barlow lens installed the telescope acts like an 1800mm lens at f/22.5. The low-light design allows viewing in conditions as dark as a moonlit sky. Figure 1 below shows both layers of the LROK case.



Figure 1: LROK Layers

As seen in Figure 1, each DOG Pan-Tilt Kit case contains the following components:

- 1 low-light camera encased with protective layer
- 1 telescope lens with camera adapter inserted
- 1 precision adjustment tripod
- 1 LCD monitor with stand and monitor cable
- 1 2X Barlow lens
- 1 Tri-Mag 3X Barlow lens
- 1 Red-Dot viewfinder
- 3 Tripod boots
- 2 Tripod adjustment knobs
- 1 Tripod support tray
- 1 12VDC universal power supply with double power jacks
- 1 100ft integrated video and power cable
- 1 120/240VAC Surge Protector
- User manuals

***** WARNING – DO NOT REMOVE PROTECTIVE CAMERA COVERING AS IT PROTECTS THE CAMERA FROM THE ELEMENTS *****

LROK Assembly

Assemble the Tripod

Remove the three tripod boots from the transport case and attach them to the bottom of the tripod legs as shown in the figure below. Remove the bolt, slide the plastic boot over the end of the tripod leg and then reinsert the bolt and nut so that it holds the boot on the tripod leg. Open up the tripod and then remove and install the black tripod support tray as shown in the figure below. The support tray simply screws into the threads by rotating it clockwise.



Figure 2: Assembly of the Tripod Base

Once the tripod base is assembled make sure the head is tightly screwed on by holding the tripod and turning it to remove any slack. Remove the tripod adjustment knobs from the transport case and attach to the tripod head as shown in the figure below. ***Make sure that the flat part of the knob tube lines up with the flat part of the mounting lug. Once it place, turn the finger screw to tighten.

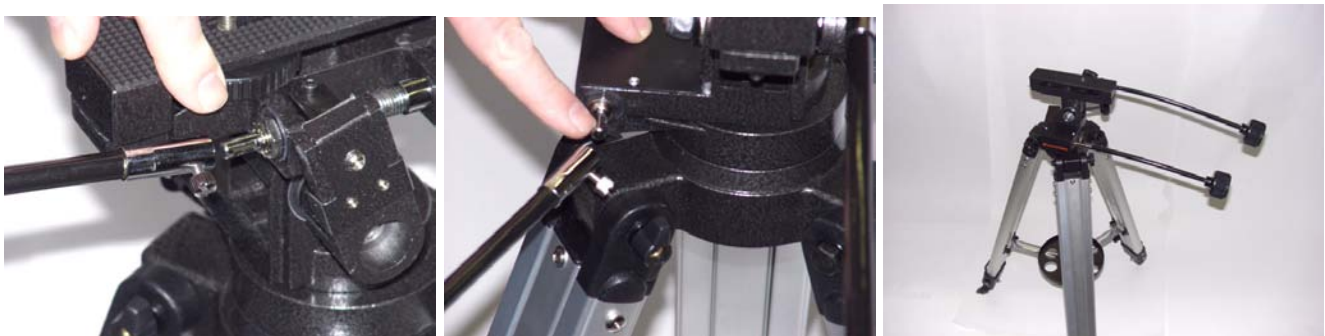


Figure 3: Assembly of the Tripod Head

Assemble the Telescope and Camera

Once the tripod is setup and standing, remove the telescope lens from the transport case and install it onto the tripod head as shown in the figure below. Place the telescope on top of the tripod head so that the mounting hole on the bottom of the telescope lines up with the mounting bolt on the tripod head. Tighten the bolt lightly (leave some slack) by turning the thumbwheel until it grabs. Then slide the telescope assembly to the front part of the bracket and tighten down firmly with the thumbwheel.

*** Make sure and use the threaded hold in the middle of the mount that is on the bottom of the telescope.



Figure 4: Connecting the Telescope

Once the telescope has been connected, remove the Red-Dot viewfinder from the transport case and slide it into the mounting bracket on the back upper side of the telescope as seen in the figure below. Once in place, finger tighten the viewfinder until it is snug. Turn on the Red Dot by turning the knob as seen in the first picture of the figure below. *** Once the long range observation kit is setup, the Red Dot viewfinder may be calibrated by turning the azimuth and elevation knobs until the dot is centered with the camera image.



Figure 5: Attaching the Red Dot Viewfinder

Now that the telescope and viewfinder are set up, move the focus all the way out by turning the wheel as shown in the figure below. Make sure the telescope is not pointing at the sun or any very bright light source and remove the caps on both ends of the telescope.

******* WARNING – POINTING THE TELESCOPE AT THE SUN OR A VERY BRIGHT LIGHT SOURCE MAY CAUSE DAMAGE TO THE CAMERA *******



Figure 6: Pull out focus and remove lens caps on both ends

With the focus all way out, remove the camera from the transport case and attach it to the telescope as shown in the figure below. Slide the camera into the adapter on the back of the telescope and gently tighten the finger screws until snug.

***** WARNING – DO NOT REMOVE PROTECTIVE CAMERA COVERING AS IT PROTECTS THE CAMERA FROM THE ELEMENTS *****



Figure 7: Attach the camera

Using the Magnification Lenses

The “Shorty” 2X Barlow lens provides a 2X magnification resulting in a focal length of 1200mm with an f-stop of f/15. The lens is inserted between the camera and the telescope adapter as shown in the figure below. Simply slide the lens into the telescope adapter and tighten the finger screws gently until snug. Then slide the camera into the back end of the lens and tighten the finder screws gently until snug.



Figure 8: Inserting the Shorty 2X Magnification Lens

The “Tri-Mag” 3X Barlow lens provides a 3X magnification resulting in a focal length of 1800mm with an f-stop of f/22.5. The lens is inserted between the camera and the telescope adapter as shown in the figure below. Simply slide the lens into the telescope adapter and tighten the finger screws gently until snug. Then slide the camera into the back end of the lens and tighten the finder screws gently until snug.



Figure 9: Inserting the Tri-Mag 3X Magnification Lens

Power and Video Connections

Once the tripod, camera, and lenses have been set up, place the system in its operational location. Remove the 100ft integrated video power cable from the transport case and connect to the two camera terminals as shown in the figure below.



Figure 10: Connect Power and Video on the Camera Side

Remove the LCD monitor and its cable from the transport case and connect the two together as shown in the figure below. Make sure that the white marks line up before pushing the connectors together.



Figure 11: Connect Integrated Cable to LCD Unit

Connect the RCA jack for channel 1 of the LCD monitor into the RCA jack of the 100ft integrated cable as shown in the figure below. Remove the universal power supply from the transport case and plug its dual male jacks into the female jacks of both the 100ft integrated cable and the LCD cable as shown below.



Figure 12: Connect Power and Video to LCD Side

******* WARNING - USE THE PROVIDED 120/240V SURGE PROTECTOR (SEEN BELOW) TO PREVENT POWER SURGES FROM DESTROYING THE EQUIPMENT*******

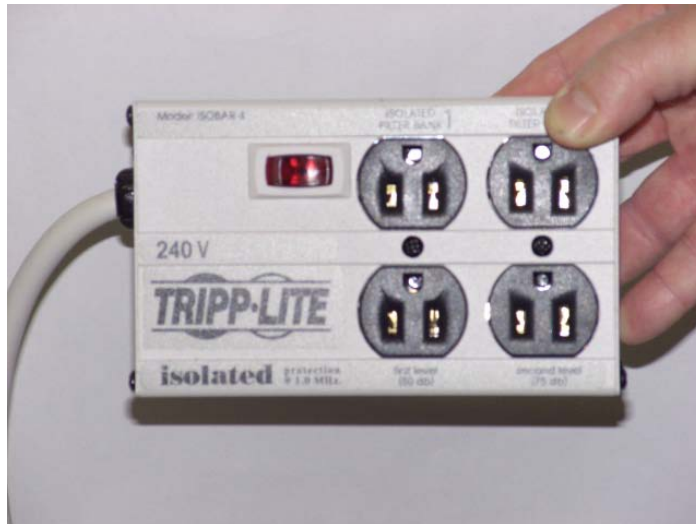


Figure 13: Plug Universal Power Supply into Provided Surge Protector

Make sure that the camera is not pointing into the sun or a bright light source and power up the system. View the image on the LCD screen. You may have to select the proper channel using the LCD buttons.

Troubleshooting

1. Power is on but there is no clear image.

- Make sure that power is on by checking the LCD lights.
- Make sure that the proper channel on the LCD has been selected.
- Make sure that the telescope cover has been removed.
- Make sure the object being viewed is at least a few hundred feet away and adjust the focus over its full range.
- Make sure the 100ft cable is working by using an alternative BNC cable and plugging the power supply directly into the camera.
- Make sure the camera is working by moving the telescope and observing light changes in the LCD. ***DO NOT POINT AT THE SUN OR VERY BRIGHT LIGHT SOURCES***

2. Tripod does not fit back into the transport case.

- Make sure that plastic boots have been removed.
- Make sure that the support tray has been removed.
- Make sure that the tripod legs are pushed up as high as possible into their supports.
- Loosen the head a little to help with maneuvering the tripod into its slot.

Contact Info/Tech Support

For questions or support please see our website at: www.bcf solutions.net or contact: admin@bcfsolutions.net, 703-956-9088.

For user manual or other technical downloads go to the customer tab on the website and login with the following: **user:** customer **password:** 2004-S4Tech

Replacement Parts

The following replacement parts may be ordered for the S4 Tech Long Range Observation Kit. Credit card orders are accepted. Please contact S4 for order information.

Part No.	Description	Cost USD
LRO-LLC	Long Range Observation Kit low light camera.	1000.00
LRO-2XB	Long Range Observation Kit 2X magnification Barlow lens	90.00
LRO-3XB	Long Range Observation Kit 3X magnification Barlow lens	90.00
LRO-LCD	Long Range Observation Kit LCD viewer	290.00
LRO-TEL	Long Range Observation Kit Telescope Lens	950.00
LRO-TRI	Long Range Observation Kit Tripod unit	200.00
LRO-ICBL	Long Range Observation Kit integrated 100ft cable	120.00

* Prices are as of March 7, 2008 and are subject to change based on availability and material costs.