

Introduction

The **RU20H/M** Thermal Camera can penetrate through haze, smoke, rain, snow and total darkness to track and aim target which is difficult to be observed by human eyes in both day and night and all weather condition.

This User Manual provides the necessary information required to safely operate the camera. It is important to fully check all equipment's with which you have been supplied. The camera must be used and maintain by suitably trained personnel. Read the User Manual completely before proceeding with operation of the camera. Never attempt to repair or disassemble the camera body.

Precautions

Important notes that must be met before or while using the camera:

- ❑ Do not direct the **RU20H/M** Thermal Camera at very high intensity radiation sources such as the sun, carbon dioxide lasers or arc welders and etc.
- ❑ Do not direct the **RU20H/M** Thermal Camera at high temperature target when power-on the camera.
- ❑ Do not place the **RU20H/M** Thermal Camera on stone, metal and etc.
- ❑ Do not use the **RU20H/M** Thermal Camera beyond the specific operation condition scope.
- ❑ When the **RU20H/M** Thermal Camera is not in use or is to be transported, ensure that the battery is taken out and the camera is stored in the protective carry case.
- ❑ The **RU20H/M** Thermal Camera integrates precision optical equipment and static-sensitive electronics, so please make them far off the knock, shock and static to avoid any damages. Insert the camera in its special carry case.
- ❑ Do not open or disassemble the camera, as this action will avoid the guaranty. Contact manufacturer if it is problem with the camera.

Tips for the care and maintenance of the cameras should be considered:

- ❑ Read the User Manual completely and carefully. The **RU20H/M** Thermal Camera must be used by trained personnel, capable of carefully following the procedures and guidelines given in this User Manual.
- ❑ Do not apply the non-fitted thermal camera adapter.
- ❑ Do not frequently power on/off the camera. The time between on and off should be at least 5 seconds.
- ❑ Pull in/out all the cables when the Camera is power off.
- ❑ Pay attention to the protection of the various cables and wires that connected with the camera.
- ❑ The **RU20H/M** Thermal Camera lens has been coated with an antireflective film layer and often clean will damage the coating. Therefore clean the optical surfaces only when it is visibly dirty.
- ❑ Please avoid touching the exposed lens surface, as the acid substance on the finger will damage the coatings and lens surfaces.
- ❑ Use only a propriety lens cleaning tissue. Never use chemical solutions, thinner, ether, acetone, alcohol and etc.

Accessories Pictures



Power/Video/RS232
Indicator Output Cable



Small Safety Bag



Rechargeable
Li-ion Battery



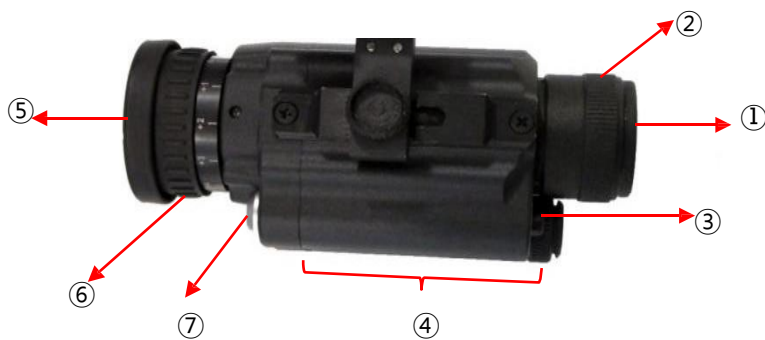
User Manual



Battery Charger

RU20M Parts

1. Infrared Lens
2. Objective Focal Length Adjust Ring (Focus) Adjust the thermal camera to create the best resolution of targets.
3. On/Off Key
4. Battery Case
5. Viewfinder
6. Eyepiece Focal Length Adjust Ring (Dioptre) Adjust the thermal camera to create a correct vision status for each person eyes.
7. Lemo Interface



Command Keys



Button	Function
Center	Displaying Menu Bar
Up	Adjusting parameter with increasing it
Down	Adjusting parameter with decreasing it
Right	Displaying Cursor setting menu

Lemo Interface

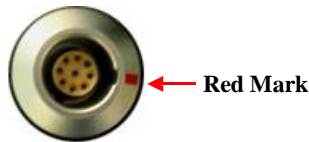
There is a Lemo interface devised on the **RU20H/M** Thermal Camera body that has one input and one outputs:

◆ **Input**

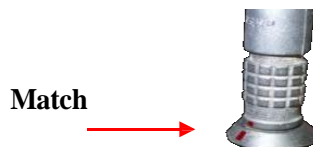
- 1. AC Power Adapter 5Vdc

◆ **Outputs**

- 1. Video (external display device)



Insert the enclosed cable connecting Lemo plug to the unique Lemo interface on the **RU20H/M** Thermal Camera. The red mark on the interface shall match the red mark on the plug.



System Operating

The follows are the two power supply method. User can choose any one of them.

1. AC Power Adapter



2. Li-ion Battery

Open the battery case Door and insert the battery with the pole against the reed. Please ensure good contact of the battery electrode and the reed inside the battery case. Close the battery case Door.

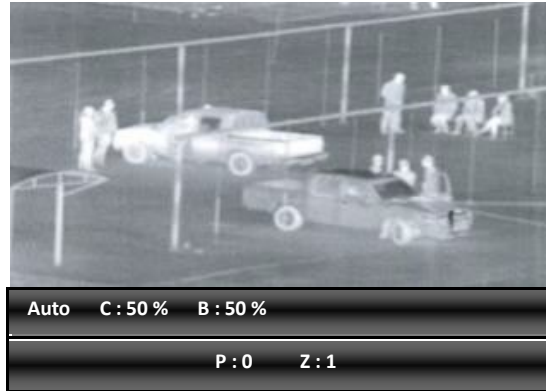
Press and keep the On/Off key for 3 ~ 5 seconds to turn on the **RU20H/M**.

Then adjust the clarity of infrared image by rotating objective focal length adjust ring (focus) and eyepiece focal length adjust ring (diopter).

When operation completed press and keep the On/Off key till the shut-down its right end. After that, remove the Lemo plug from the Camera by holding the lock pin on the Lemo plug and putting it out. Do not pull the Lemo plug by force, otherwise damage may occur.

Menu Bar

After start-up, press the menu button (center).the menu bar will be presented on the display as the below picture shows. There are some parameters on menu bar that you can select them by pressing the menu button. The selected parameter will be shown in white on gray background. Adjust each parameter value by pressing +and -buttons.



Menu Bar Parameter

1. Auto / Semi Auto Mode
2. Contrast
3. Brightness
4. Polarity (White hot / Black Hot)
5. Electronic Zoom

Auto/Semi Auto Mode

Select parameter “Auto“, press + or - buttons to switch between Auto/Semi Auto modes and correspondingly to select the brightness, contrast Auto /Semi Auto adjustment ways.

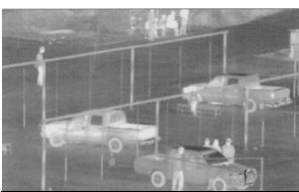
Mode	Menu Content	Effect
Auto	Brightness, Contrast	Auto Offset and Gain
Semi Auto	Brightness, Contrast	Auto Offset, Manual Gain

In the Auto mode, user can adjust parameter (B) to get satisfying image brightness and adjust parameter (C) to get satisfying image contrast. System sets offset and gain in real time as per your input to obtain acceptable image quality.

In the Semi Auto mode, user can adjust parameter (B) to get satisfying image brightness. System automatically sets offset as per your input brightness value. User can adjust gain manually.

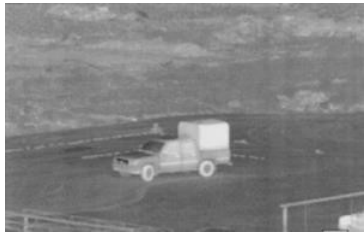
Polarity

The **RU20H/M** Thermal Camera uses different gray level to indicate different temperature. Under positive polarity mode, brighter part represents higher temperature; while under negative polarity mode, brighter part represents lower temperature. Select menu polarity parameter and press + or - buttons to switch between 2 polarity modes.



■ Electronic Zoom

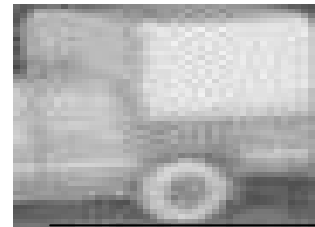
The **RU20H/M** Thermal Camera has an electronic zoom feature to make the image bigger, default is $\times 1$ (no magnification) but by selecting this parameter and pressing \leftarrow or \rightarrow buttons, it may select $\times 2$ (2 times magnification) and $\times 4$ (4 times magnification)



1X



2X



4X

■ Cursor Setting Menu

User can select the cursor that provided by the system and over displayed on the infrared image. User can also calibrate the cursor up and down, left and right. Press simultaneously Right buttons for the cursor setting menu appears on the bottom of display as below:



Cursor: 0 X: 0 Y: 0 Save Exit

Select the Cursor parameter then press + or - to switch the cursor display mode. When cursor=0, there will be no cursor on the display. When cursor =1, the cursors will display on the display

When the cursor is displayed, select the parameters by (center key) , select the parameter (X) then press (Up) or (Down) to change the value of X axis. And cursor will move horizontally. Select parameter (Y) then press (Up) or (Down) to change the value of Y axis. And cursor will move vertically. Select "Save" parameter, then press (Up) buttons to save cursor setting. Select "Exit" parameter, then press + buttons to quit the cursor setting menu.

Troubleshooting

■ The camera doesn't turn on

1. Remove the battery and install a fully charged battery.
2. Clean battery contacts.

■ The image is too bright or too dark

1. Adjust brightness and contrast manually or set to auto brightness/contrast mode.

net Camera Accessories Pictures



Hooks behind



Helmet mount



Cap mount

Assembling Helmet Camera

Step 1 : Fasten belt of Helmet mount same as below picture



Step 2: fasten helmet mount on cap (below pictures)

Step 3: Assemble camera on helmet mount

Push this Sponsor (fig 1) and assemble the helmet mount on cap mount



1



2

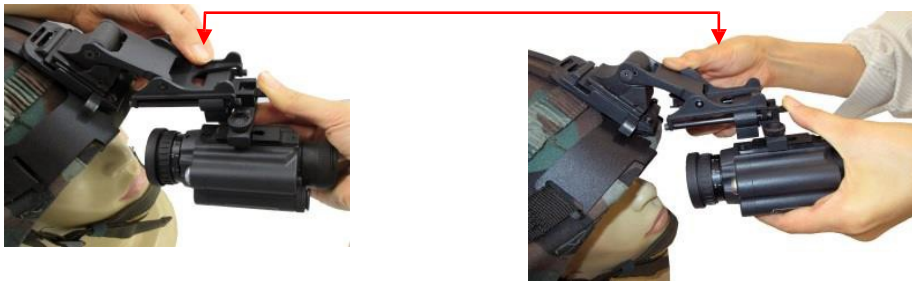


3

Step 4: Assemble helmet locker on camera



Step 5 : push down the lever on helmet locker and assemble the camera on helmet mount



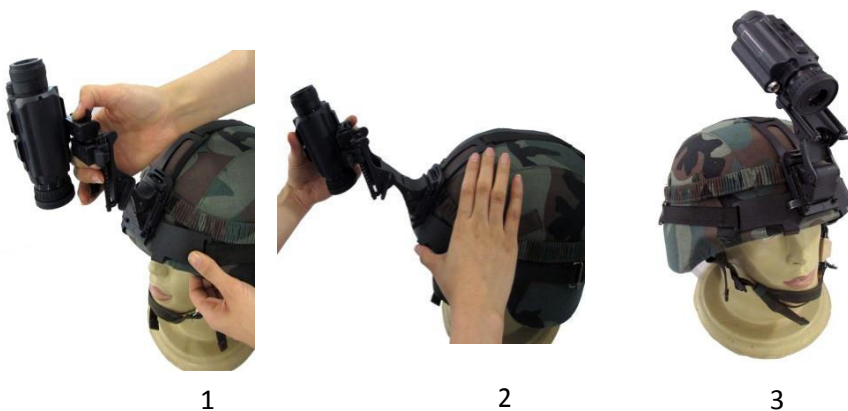
Step 6: For change angle of the camera between 0 ~ 10 degree, use this screw (fig 2)



Step 7: For moving the camera forward and backward, push down this lever and move the camera



Step 8: When the Camera is not in use, move the camera to this position by hand



RU20M (For GUN):

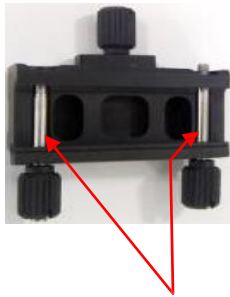
Step 1: Turn clockwise screw of the rail and fasten camera on rail guide



Step 1: fasten the camera on interface rail



Step 2: fasten the camera with rail on the Gun



Pin guide for gun rail

