



## **User Instructions**

### **MSA LUNAR**

Order No.: 10214662/00

Print Spec: 10000005196 (EO)

CR

## **WARNING!**

Read this manual carefully before using or maintaining the device. The device will perform as designed only if it is used and maintained in accordance with the manufacturer's instructions. Otherwise, it could fail to perform as designed, and persons who rely on this device could sustain serious injury or death.

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The warranties made by MSA with respect to the product are voided if the product is not installed and used in accordance with the instructions in this manual. Please protect yourself and your employees by following the instructions.

Please read and observe the **WARNINGS** and **CAUTIONS** inside. For additional information relative to use or repair, call 1-800-MSA-2222 during regular working hours.

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## 1 Safety Regulations

### US

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the User's authority to operate the equipment.

### Canada

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs / récepteurs exempts de licence qui sont conformes au (x) RSS (s) exemptés de licence d'Innovation, Sciences et Développement économique Canada. L'opération est soumise aux deux conditions suivantes:

- (1) Cet appareil ne doit pas causer d'interférences
- (2) Cet appareil doit accepter toute interférence, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil

### 1.1 Restrictions

MSA LUNAR is not suitable for the following applications:

- Although the thermal imaging camera (TIC) is waterproof, it is unable to take underwater images.
- Likewise, the camera does not take images through glass, water or shiny surfaces which may reflect infrared light and may appear as a thermal image "mirror".
- The camera does not improve the user's sight. Corrective spectacles must continue to be worn.

### Limitations

- Certified ambient operating temperature range:  $-25^{\circ}\text{C} \leq \text{Tamb} \leq +40^{\circ}\text{C}$ .
- Failure to properly use and maintain this product can result in injury or death.
- Never substitute, modify, add or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- Refer to user instructions in this manual for information on use and maintenance of this device.
- Refer to user instructions in this manual before donning.
- This device contains a battery and electronics. Dispose of or recycle in accordance with all applicable federal state and local regulations.

### 1.2 Safety and Precautionary Measures

#### **WARNING!**

The User must be trained and thoroughly familiar with proper operation and limitations of the device. Use in controlled live-burn exercises is suggested before using the device in actual emergency situations.

Do NOT rely on the device as the sole means of navigation, search and rescue, or alarm of a Target in distress. Do NOT deviate from standard firefighting navigational, search and rescue, or operating procedures and best practices during use. Radio-frequency based search and rescue technology is not a replacement for these procedures. Although the system provides an image in dark and smoky environments, the User may become disoriented or lost in such environments if the system becomes inoperative.

If a local alarm network or LTE network interruption occurs, or communication of devices or Cloud connectivity is slowed or prevented, standard firefighting navigational, search and rescue, and operating procedures must be followed.

Wireless and Bluetooth Operation is dependent upon signal availability of the wireless service(s) necessary to maintain the communication link. Loss of wireless signal will prevent communication of alarms and other information to linked devices and will prevent the use of LUNAR's search capabilities. Take appropriate precautions in the event a loss of wireless signal occurs.

The search functionality is dependent upon the Target of the search having an operational, connected LUNAR device that is powered on, connected through wireless signal on and on the Target's person. If the LUNAR device is not operational, powered on and connected through wireless signal, the Target will not be able to be searched. If the LUNAR device is not on the Target's person, the search function will lead searchers to the LUNAR device rather than the Target.

If the LUNAR device does not operate correctly as described in these instructions, remove the LUNAR device from service. Make sure an MSA trained and certified repair technician corrects the unsatisfactory condition before returning the LUNAR device to service. This device is NOT field serviceable.

Repair or alteration of the device beyond the procedures described in this manual or by anyone other than a person authorized by MSA could cause the unit to fail to perform properly. Use only genuine MSA replacement parts when performing any maintenance procedures described in this manual. Substitution of components can seriously impair performance of the unit, alter intrinsic safety characteristics or void agency approvals.

Before and after each use, inspect the device to determine if servicing is required. Do not use if the device does not power on successfully or if device is bent, cracked, modified or otherwise compromised.

Exposure to high temperature environments for an extended period of time may cause degradation or loss of thermal image. Avoid heat saturation or overexposure of the equipment. MSA LUNAR is capable of providing an acceptable image when subjected to an ambient temperature of approximately 120°C (248°F) for 20 minutes. Exposure to conditions exceeding these may result in deterioration and/or loss of image. If degradation of the thermal image is observed, immediately remove the equipment from the high heat environment and allow it to cool until the thermal image returns to normal; otherwise, the system may become inoperative.

Do NOT mark the device with stamps, labels, paint or other method. Use of such markings may interfere with camera use or may constitute a flammability hazard.

Do NOT charge LUNAR in explosive atmospheres.

Only charge LUNAR and LUNAR battery packs indoors.

Only charge the LUNAR battery in temperatures between 0°C (32°F) and 40°C (104°F).

Only charge LUNAR or LUNAR batteries with the Single Point Charger or Universal Multi-Bay Charger with power supplies provided by MSA at time of purchase.

Do NOT use a rechargeable battery charging system, which includes the Single Point Charger or Universal Multi-Bay Charger, power supply and power cords, if any component of the system shows damage. Replace the components if they show cracks or distortion, or if the cord shows damage or wear.

Keep LUNAR and rechargeable battery charging system dry. Do NOT disassemble, repair or alter LUNAR or charging system. Do NOT immerse in water or other liquids.

Do NOT expose the rechargeable battery or charging system to high temperature or heating equipment including, but not limited to, direct sunlight and water heaters. Overheating may cause an explosion.

Do NOT drop, crush or puncture the rechargeable battery or charging system. Damage from such occurrences can lead to short-circuit and overheating of the equipment.

To prevent electric shock or fire, do not remove the cover or tamper with the case of the power supplies provided in each charging system. There are no user-serviceable parts inside. The power supplies contain hazardous voltages and must not be opened. Do not use if any damage to the power supply is observed, including bent prongs, cracked case, modified or compromised. To avoid the possibility of electric shock, disconnect electric power to the power supply before connecting or disconnecting the power supply to the charger clip or charger bay.

**POWER SUPPLIES** for Universal Multi-Bay Charger: AC Mains voltage must be provided to the power supply by a power supply cord approved to the national standards in which it will be used.

**FUSING:** Internal fuse for Line is provided in the power supply. A blown internal fuse is an indication of critical condition of circuit component(s). If you suspect a blown fuse, do NOT use the device. Return to MSA for service.

Do NOT dispose of batteries in a fire. Batteries can explode. Dispose of in accordance with local regulations and requirements.

Do NOT replace the battery with another type of battery. Use only LUNAR battery packs. Use of an incorrect battery type creates a risk of explosion.

Do NOT use a rechargeable battery pack that shows signs of damage such as bulging, swelling, leaking fluid, a cracked housing, or broken contacts.

Do NOT attempt to open the housing of the rechargeable battery pack. The rechargeable battery pack does not have replaceable cells.

**Failure to follow these warnings can result in serious personal injury or death.**

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### **WARNING!/AVERTISSEMENT!**

Risk of explosion if battery is replaced with incorrect type.

Dispose of used batteries according to instructions. Do not disassemble, short circuit, or dispose of in fire.

Failure to follow these warnings can result in serious personal injury or death!

Risque d'explosion si la batterie est remplacée par un type incorrect.

Débarrassez-vous des piles usagées selon les instructions. Ne pas démonter, court-circuiter ou ne vous disposer dans le feu.

**Le non-respect de ces avertissements peut entraîner des blessures graves ou la mort!**

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## 2 Overview

### 2.1 LUNAR

MSA LUNAR is a wireless, handheld search and rescue device that includes firefighter-to-firefighter ranging using direction and distance indicators, edge detection enhanced thermal imaging, and cloud connectivity to [FireGrid](#). This device offers accountability and connectivity for SCBA users that are not equipped with telemetry. It can also be utilized independently of an SCBA - providing accountability to all firefighters on-scene.

LUNAR is not a substitute for standard techniques and precautionary measures. Users must continue to ensure standard operational processes are observed and maintained while using the device.

### 2.2 FireGrid

FireGrid is an easily accessible cloud-based software platform that helps to improve firefighter safety by increasing a department's capability for managing products, people, and processes.

This platform includes the following:

- FireGrid Configure (mobile app)
- FireGrid Monitor (mobile app)
- FireGrid (web platform)

Learn more about FireGrid at [msafire.com/connectedfirefighter](#) and [safetyio.com](#).

## 3 Getting Started

### 3.1 In the Box

LUNAR comes with the following components:

- LUNAR device
- LUNAR Battery
- Single Point Charger
- LUNAR Quick Start Guide (P/N 10215367)
- LUNAR Registration Guide (for registering a LUNAR device in FireGrid) (P/N 10215366)

#### 3.1.1 Accessories and Replacement Parts

Accessories and replacement parts can be purchased separately at <https://us.msasafety.com/>.

##### Accessories

Product	Part Number	Description
LUNAR Battery	10214756	The LUNAR device's removable, rechargeable power supply.
Retractor	10203941	Used to tether LUNAR to an SCBA. See <a href="#">4.1 Donning LUNAR</a> for more information.

##### Replacement Parts

Product	Part Number	Description
LUNAR Battery Pack	10204050	Replace battery pack with LUNAR Battery Pack MSA Part Number 10204050.
Boot	10214762	Rubber cover that wraps around the LUNAR device to protect from damage, corrosion or deformation.
Quick-Disconnect Swivel	10214763	Used to connect the Retractor to LUNAR so the device can be tethered to an SCBA.

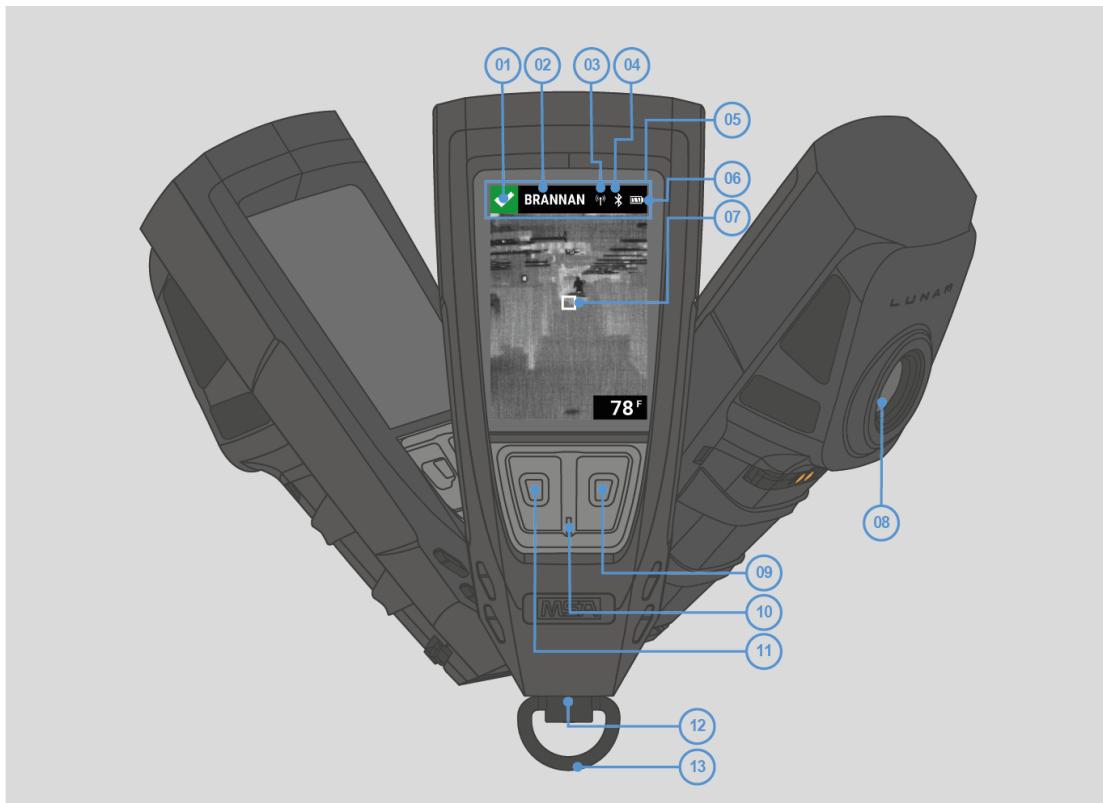
##### Charging Products

Product	Part Number	Description
Single Point Charger		
NNA	10214758	Allows charging of one LUNAR device.
Europe	10214759	
UK	10214760	
AS/NZS	10214761	

##### Universal Multi-Bay Charger

NNA	10214752	Allows charging of up to six LUNAR devices at one time.
Europe	10214753	
UK	10214754	
AS/NZS	10214755	

### 3.2 Device Overview



01	Status
02	ID
03	LTE connection
04	Bluetooth connection
05	Notification banner
06	Battery level
07	Display
08	TIC lens
09	'Enter' button. Press to select.
10	LED
11	'Down' button. Press to scroll.
12	RFID tag
13	Quick-Disconnect Swivel

## 4 Basic Operation

### 4.1 Donning LUNAR

LUNAR can be tethered to an SCBA and Turnout Gear using a [Retractor](#).

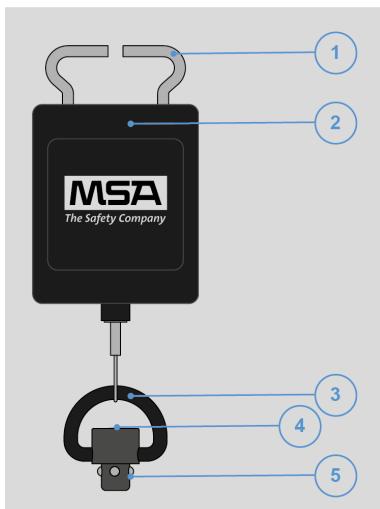
#### **WARNING!**

Ensure LUNAR is securely attached using a tether by following the instructions below for donning LUNAR.

If using a tether other than the MSA Retractor, ensure that the tether material and connection method are capable of withstanding the loading and environmental conditions that will be encountered during use.

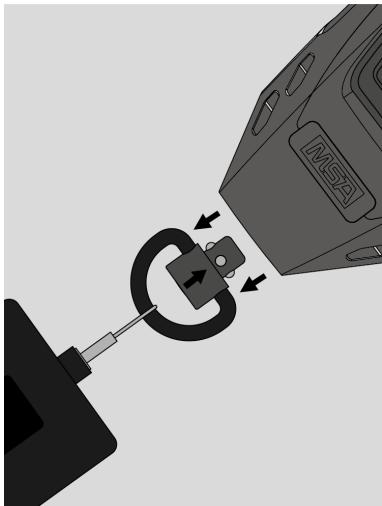
**Failure to follow this warning can result in serious personal injury or death.**

#### Retractor Components



01	Split D-ring
02	Retractor
03	Quick-Disconnect Swivel
04	Swivel Button
05	Swivel End

First, remove the Quick-Disconnect Swivel (03) that comes attached to the bottom of LUNAR:



- (1) Push and hold in the LUNAR Swivel Button (04).
- (2) Pull the Quick-Disconnect Swivel (03) to remove.

Then follow the instructions for the applicable SCBA:

- [Tethering LUNAR to a G1 SCBA](#)
- [Tethering LUNAR to an M1 SCBA](#)

#### Tethering LUNAR to a G1 SCBA



- (1) Identify the G1 SCBA shoulder strap webbing loop (07). It sits roughly one inch up the strap tunnel (06) on the User's left-hand side.



- (2) Slide the Retractor (02) up the G1 SCBA strap tunnel (06) until the Split D-ring (01) is above the specified stitch.



(3) From outside of the G1 SCBA strap tunnel (06), secure the Retractor (02) with your right hand.



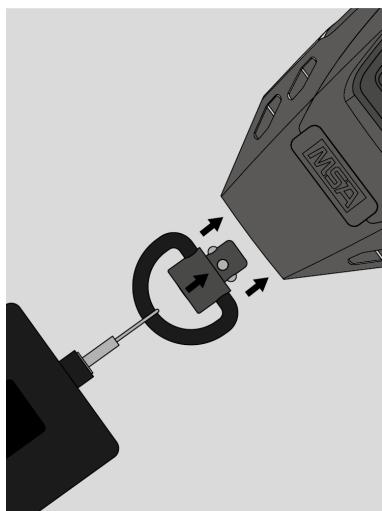
(4) Reach into the G1 SCBA side access tunnel (08) with your left hand. At this point, the Split D-ring (01) should be in front of the webbing.



(5) Using two fingers, fold the G1 SCBA shoulder strap webbing until one end can feed between the gap in the Split D-ring (01).



- (6) Work the rest of the G1 SCBA shoulder strap webbing through the gap. The Split D-ring (01) should now be fully supported by the specified stitching loop.



- (7) Attach the Retractor (02) to the bottom of LUNAR:
  - a) Push and hold in the Retractor Swivel Button (04).
  - b) Insert the Swivel End (05) into the bottom of LUNAR.

#### Tethering LUNAR to an M1 SCBA



- (1) Identify the M1 SCBA shoulder strap webbing loop (09). It sits on the User's right-hand side, one loop above the strap adjustment.



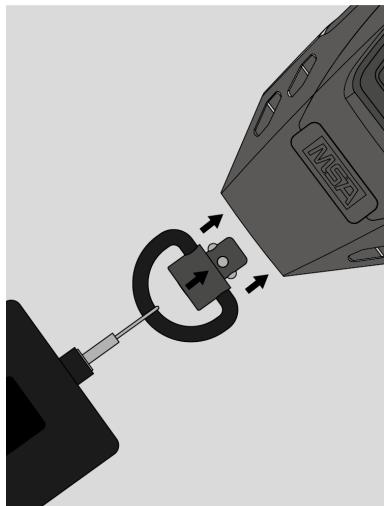
(2) Slide the webbing loop (09) between the gap in the Split D-ring (01) until half of the webbing is within the Split D-ring and half of the webbing is underneath it.



(3) With your right hand, grip the Retractor (02) and pull forcefully to the User's right. With your left, fold the webbing loop (09) under the Split D-ring (01) until it is able to slide between the gap and within the Split D-ring. Note that the stitching on these loops is robust and can handle the amount of force required.



(4) Flatten out the webbing loop (09) once it is fully contained within the Split-D ring.



(5) Attach the Retractor (02) to the bottom of LUNAR:

- Push and hold in the Retractor Swivel Button (04).
- Insert the Swivel End (05) into the bottom of LUNAR.

## Orienting LUNAR



The LUNAR device directional search antenna is aligned with the axis of the [Thermal Imaging Camera \(TIC\)](#).

The directional search signal you receive is the signal from the area shown in the thermal image.

## 4.2 Powering On and Off

### 4.2.1 Powering On



Long press the **Down** or **Enter** button.

#### NOTES:

Installing a charged battery also powers on the device. See [4.8.4 Installing and Removing the Battery](#).

Attempting to power on a LUNAR device with a low battery level results in a flashing Low Battery icon, and LUNAR shuts down. See [4.8.3 Charging the Battery](#).

### 4.2.2 Powering Off

- (1) Open the [main menu](#).
- (2) Select **SHUTDOWN**.
- (3) Select **YES** to confirm shutdown.