



## SMARTDUMMY™ THERMAL

[ USER'S MANUAL

ORIGINAL  
USER'S MANUAL

Version 2.3  
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# 1 General Description

The *SmartDummy™ Thermal* is designed to facilitate search and rescue operations with a thermal imaging camera. The manikin emits heat similar to a victim's body heat so that it can be located using a thermal imaging camera. The *SmartDummy™ Thermal* can be used in smoke filled areas and carried or dragged out of car wrecks, tunnels, etc.

# 2 Technical Specifications

## General

The *SmartDummy™ Thermal* is fashioned out of a quality canvas and is reinforced in key areas with polypropylene to make it durable enough for search and rescue drills. Rubber boots have been added to prevent damage caused by dragging across the ground. The *SmartDummy™ Thermal* has a soft exterior like a human victim while still being durable.

On the front side of the manikin, a layer of heating material is built into the *SmartDummy™ Thermal* to make it look like a human victim on a standard thermal imaging camera.

The manikin has a cavity for an ACV Box on the left side of its head. This cavity is accessible by opening the Velcro fitted flap. The control panel of the *SmartDummy™ Thermal* is located on the right side of the head and is accessible by opening the Velcro fitted flap.

## Scope of delivery

- *SmartDummy™ Thermal*
- Charger for the *SmartDummy™ Thermal*
- Power cable for charging
- User Manual

## Measurements

Length, including boots:	ca. 180 cm
Total weight:	ca. 30 kg
Colour:	grey / black

## Usage conditions

Allowed ambient temperature: Continuous max 35 °C, intermittent (10 min.) max. 60 °C,  
Avoid radiating heat. It can rapidly increase the temperature of the manikin.

The *SmartDummy™ Thermal* is **not** to be used near a fire.

The *SmartDummy™ Thermal* is **not** resistant to water damage. Make sure that it does not get wet.

Dragging can lead to damage of the exterior layer. Avoid sharp objects and hot surfaces that can damage the electronics within the manikin.

**The *SmartDummy™ Thermal* will turn itself off when moved forcefully. The heating function is operational only when the manikin still.**

### Electrical specifications

Battery:	24V - 18Ah
Charging time:	4 to 5 hours
Usage time per charge:	approx. 2.5 hours with a full battery
Charger input:	230V or 115V 50/60 Hz
Max. Power usage by charger:	4.3A
Heater:	160 Watt
Warming up time:	5 to 10 minutes (Dependent on ambient temperature)
Temperature:	10 to 20 °C above ambient temperature.
Safety features:	Temperature sensor in the chest Motion sensor (activates approx. 30 seconds after switching on) Battery undervoltage detection

## 3 Use

Each training where injured people need to be rescued should involve a manikin. A person role-playing as the victim exposes the role-player to dangerous situations.



Figure 1: The SmartDummy™ Thermal

The *SmartDummy™ Thermal* can be used for most exercises except water rescue and extreme temperature conditions. The manikin can be used for a variety of transport grips / lifts and thermal imaging camera techniques.

Please note that the current Health, Safety and Environment regulations must be observed when using the *SmartDummy™ Thermal*.

Possible uses for the *SmartDummy™ Thermal*:

- *Trainings where the manikin is used as a dragging manikin.*  
This allows you to practice various lifts and victim situations.
- *Thermal imaging camera trainings.*  
Challenge your trainees to properly use a thermal imaging camera to locate and rescue victims in low visibility environments. The manikin can be placed on the floor or behind furniture to increase the difficulty of the scenario.

#### Prepping the Manikin

Place the *SmartDummy™ Thermal* face up on a dry, stable floor where no sharp or hot materials are present.

**The manikin must be kept face up during use.** Laying it face down will cause it to overheat and turn itself off. The back and the sides of the *SmartDummy™ Thermal* have no heaters and will not warm up to a victim's body temperature.

Important: When dragging the manikin make sure that the route is clear of sharp and hot materials.

**Do not place anything on the manikin as this can cause overheating.**

#### Starting up

Charge batteries before use.

Press the 'ON' button (4) on the control panel for 1 second (see figure 3). The indication LED (3) will light up and the manikin will start heating up (in case of fully charged batteries). It takes 5-10 minutes before the manikin is noticeably hot.

## Starting your training

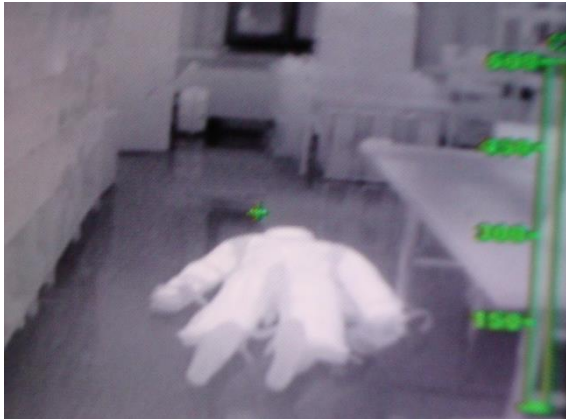


Figure 2: Image of the 'SmartDummy™ Thermal' on a Thermal Imaging Camera

**Make sure that the manikin is not plugged to the charger.** Place the manikin on a stable surface. Keep in mind that only the front of the manikin heats up. The back and sides of the manikin are room temperature.

Thermal imaging cameras can detect the *SmartDummy™ Thermal* at a distance of 3 meters (see figure 2).

The manikin can stay hot for over **2.5 hours** (depending on the charge of the batteries). When multiple trainings are staged during the day, it is recommended to charge the manikin between each evolution. Press the 'FUSE' button (1) to restart the manikin for a new training session (see figure 3).

To save battery charge, **movement or vibrations activate the built-in sensor, causing the manikin to switch itself off!**

## 4 Operating

Operating panel of the "SmartDummy™ Thermal" (Figure 3):

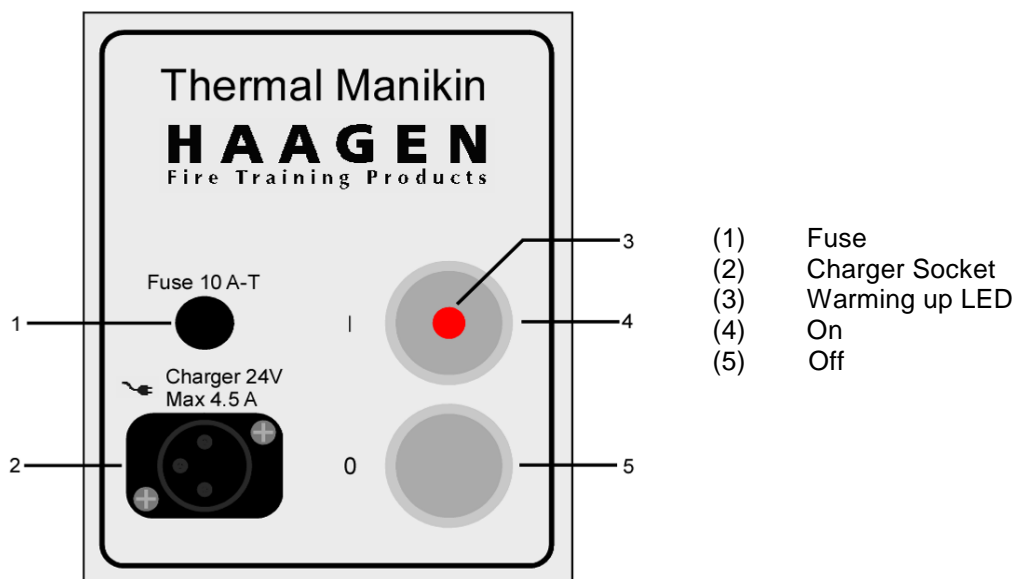


Figure 3: Operating Panel 'SmartDummy™ Thermal'

### Turning on

Push the 'ON' button (4) for a second. The Warming up LED (3) will come on. The manikin will be warming up. **Movement detection will be active after 30 seconds.**

### Turning off

Press the 'OFF' button (5). The Warming up LED (3) turns off and the manikin stops warming up.

## 5 Charging

“SmartDummy™ Thermal” charger (figure 4):

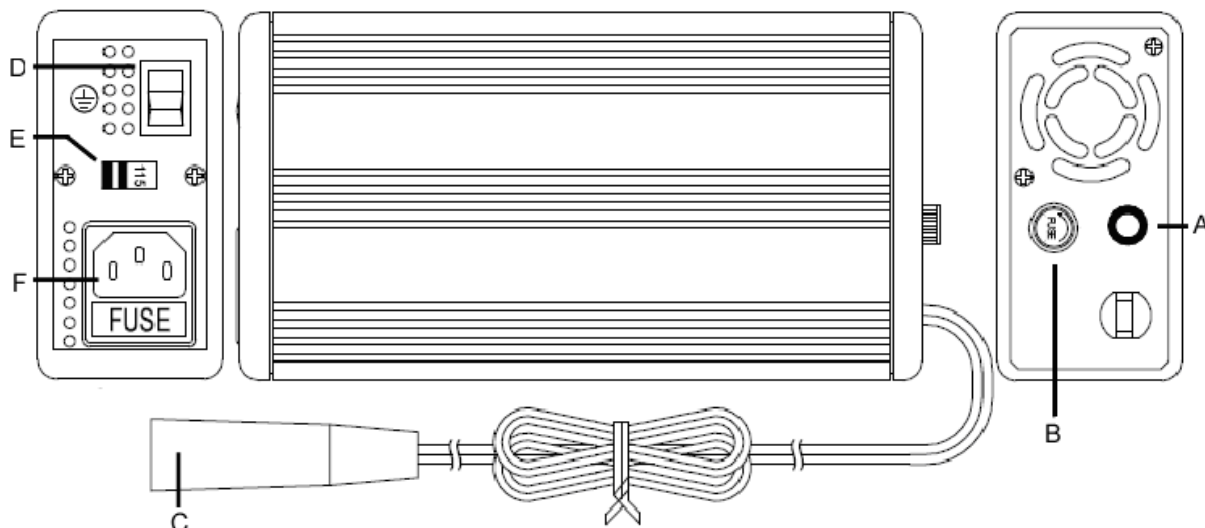


Figure 4: 'SmartDummy™ Thermal' charger

- (A) LED Charge Indicator (green/red)
- (B) Fuse
- (C) XLR Connector
- (D) On/Off switch
- (E) 115V/230V switch
- (F) Cable Connector with Safety

### Charging

Charge the battery of the *SmartDummy™ Thermal* before each event to maximize the time you can spend training. Once the battery runs low, the manikin will turn itself off to maintain a minimal charge. The Warming up LED (3) will go out and the manikin cannot be turned back on with the 'ON' button (4) until the battery is charged.

In order not to adversely affect the life of the batteries, they must be charged as soon as possible. A charge cycle takes about 4 hours.

- Pay attention that the 115V/230V switch (E) is set to the correct setting.
- Attach the cable (C) to the charge connector (2) of the manikin.
- Turn the On/Off switch (D) to 'ON'.

***The manikin should be kept face up during charging. It should never be charged whilst being bent over (head pointing downwards), placed on its side or hung upside down.***  
***To charge the SmartDummy™ Thermal it needs to be turned off.***

The LED Charge Indicator (A) will light up red to indicate that the battery is charging. Once the charge is complete the indicator (A) will light up green.

When the battery is completely empty, the charger will start a drip-charge cycle to ensure no damage comes to the battery. When this happens the LED Charge Indicator (A) will turn red. Leave the charger connected and the charger will safely charge the battery. A full charging cycle lasts about 4 hours.

**When the battery is fully charged, the charger will switch instantly to a drip-charge cycle.**

## 6 Maintenance

### Inspection Before and After Use

Check before and after use for signs of wear and tear. Small damages can easily be repaired. Using a damaged *SmartDummy™ Thermal* can lead to electrical short circuits within the manikin. This will render repairs and use impossible, and, can cause the manikin to catch on fire.

### Cleaning and Storing

The exterior of the manikin is made of solid canvas and can be easily cleaned after use. If necessary, the manikin can be cleaned with a moist rag. Do not use solvents as these can lead to damage.

Make sure to not get the manikin wet during cleaning as the electronics in the manikin are not water resistant. If this should happen, let it dry completely before storing it or using it again.

### Disinfecting

If the *SmartDummy™ Thermal* has been exposed to hazardous materials during the training, the manikin, along with other materials used, must be disinfected in the manner as is usual for the substance in question. Please keep to the directives explained in section 'Cleaning and Storing' of this manual.

### Repairs

Repairs are rarely feasible in the field. Eventual repairs can be done by LION Fire Training Products.

## 7 Precautionary Measures and Safety guidelines

### Precautionary Measures

The *SmartDummy™ Thermal* should be handled with care. It has been developed for normal use as may be expected when staging training situations.

Dragging the manikin by one limb or by the head may cause damages to the exterior and the electronics inside the manikin. Dropping the *SmartDummy™ Thermal* from heights of more than 50 cm can lead to damage to the battery or can lead to small tears. A high ambient temperature can also cause damage to the manikin.

Twisting the limbs of the manikin can cause severe damage. Adding additional weight is not allowed. When setting up a training session, make sure that the manikin isn't near or on any warm or sharp objects that could damage the exterior.

The *SmartDummy™ Thermal* is **not** made to be used in water scenarios.

### Recommendations and Safety Guidelines

The *SmartDummy™ Thermal* should be moved using proper lifting technique. Carrying the manikin in an incorrect way can lead to back or muscle injury.

The manikin cannot be used in high temperature environments as this can damage the exterior of the manikin. The outer layer is not fire resistant.

***The manikin should be kept face up during charging. It should never be charged whilst being bent over (head pointing downwards), placed on its side or hung upside down.***

***To charge the SmartDummy™ Thermal it needs to be turned off.***

## 8 Extra options

### ACV Box

To ensure a realistic training, the ACV Box can be placed in the head cavity of the SmartDummy™ Thermal. The ACV Box allows sound or voice to be recorded and played back as if a victim were telling you where they are or what their injury is. The ACV Box is voice activated and can be set to repeat the text once or continuously.



Figure 5: ACV Box



Figure 6: ACV Box inside the Head of the 'SmartDummy™ Thermal'



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