



# **GEM 2xxx Heated Soft Case Operation Manual**



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**This manual is subject to revision without prior notice. Please periodically check our website for a newer revision.**

Revision	Date	Approved by	Translated from	Comment
A	Dec-2010		N/A	<i>This document uses Arial, Wingdings, Wingdings 2, Wingdings 3, G12k fonts. Printing of this document to PDF should only be done if these fonts are present. "Whitespace" has been removed from many of the graphical images and the images are otherwise "cropped" to reduce the total number of pages. These alterations of the actual screen images do not detract from the technical content presented</i> 1 <sup>st</sup> Release of this manual

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## **1 Introduction**

LANDTEC is the premier manufacturer of products, instruments and software for landfill gas extraction and for regulatory monitoring compliance. LANDTEC has provided the landfill industry with a technologically innovative family of products for more than a decade. These products are the result of field-proven experience in design, operation and maintenance of landfills for environmental compliance.

The GEM2xxx series of gas analyzers, designed by LANDTEC, are specifically for use on landfills to monitor landfill gas (LFG) extraction systems, flares and migration control systems. These instruments sample and analyze the Methane, Carbon Dioxide and Oxygen content of LFG. The GEM2xxx series is designed for use in temperatures down to freezing (0°C/32°F) however there are times when it is necessary to operate the instruments at lower temperatures. The heated soft case has been designed to extend the operating temperature of the analyzers. It will prevent potential short-term degradation in performance of the GEM2xxx display and/or keypad that can occur due to excessively cold ambient temperature.

This is done by heating the front of the instrument with a heating pad located in the front flap of the soft case. The front flap of the soft case must be closed for proper heat transfer to the instrument. It is understood that the front flap will need to be opened during sampling events to view the display and operate the key pad. However in-between readings and anytime the display and/or keypad is not being utilized the front flap should be closed to facilitate heat transfer to the front of the instrument.

The GEM2xxx heated soft case can be charged with the GEM wall charger or the GEM car charger. The heated soft case, LANDTEC part number "HCASE-2000" includes the following items:

- GEM Soft Case
- Heating Pad (installed)
- Battery Pack Pouch (installed)
- Battery Pack (installed)
- Charge Control Box (installed)

**Immediately notify shipping company if the GEM2xxx Heated Soft Case or accessories are damaged due to shipping.** Contact LANDTEC immediately if any items are missing.

For questions regarding instrument operation and procedures, please contact LANDTEC at:

Customer Service or Technical Support  
Factory Service

(800) 821-0496 Ext. 6131  
(800) 821-0496 Ext. 6141



off. The indicator light does not indicate the status of charging functions please refer to the light on the charger.

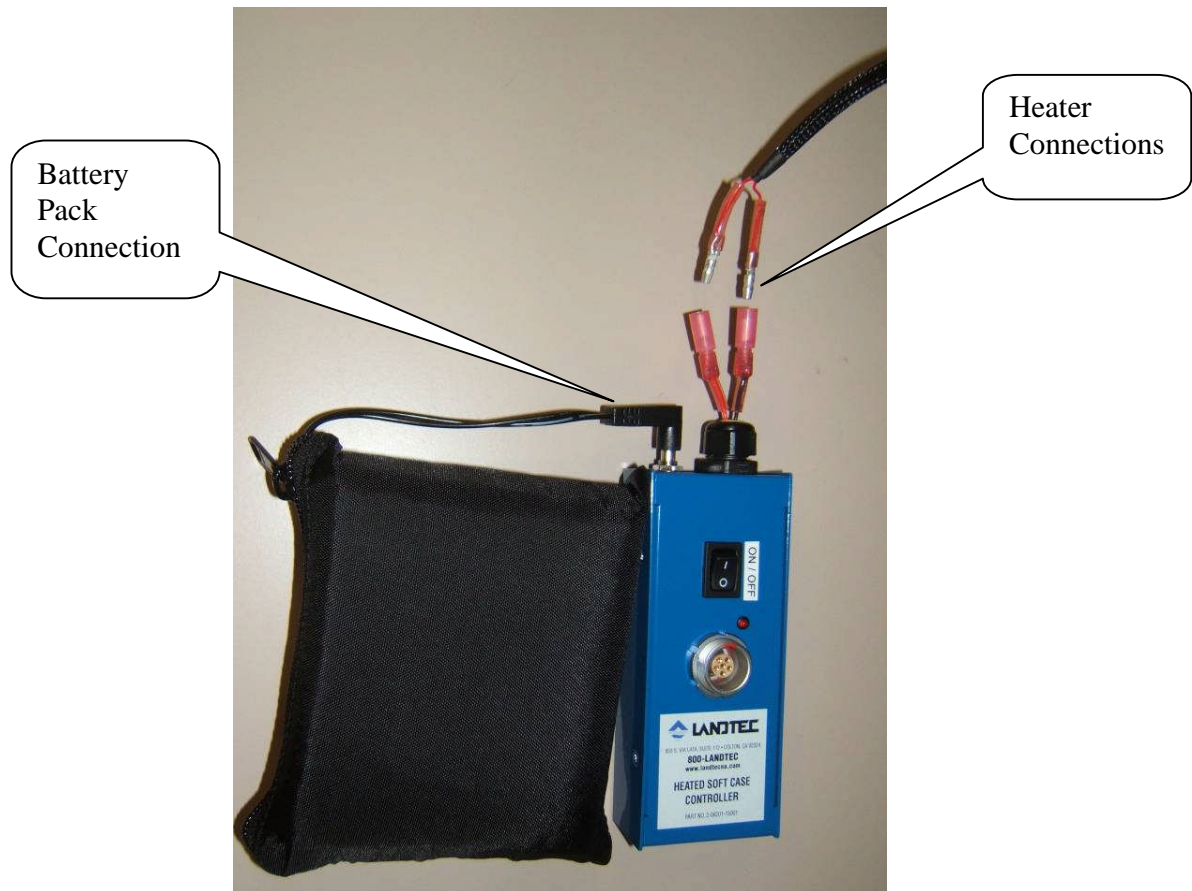


**Figure 2**

### Connections

There are four electrical connections one for the charger, one for the battery pack and two for the heating element. The connector below the indicator light (see figure 2 above) is the charging port. The connector is keyed like the charge port for the GEM. Either the GEM wall charger or the GEM car charger may be used to charge the unit.

The battery pack connects to the top of the control box (see figure 3 below). The heater should not normally need to be disconnected but if necessary it can be removed (see figure 3 below). Note the two leads from the heater can be connected in any order. It is a resistance device that is independent of polarity.



**Figure 3**

## **2.2 Storage**

When not in use, the heated soft case should be kept in a clean, dry and warm environment such as an office.

The batteries should be discharged and fully charged at least once every three months regardless of indicated charge state. The discharge function may be carried out by simply turning on the heater and letting the batteries discharge. The charger controller has a built in low voltage protection so the battery will not be over discharged. Therefore it is acceptable to discharge over night. The next morning turn the heater off and plug the charger in to charge.

## **2.3 Battery/Charging**

The battery used in the GEM2xxx heated soft case is a Nickel Metal Hydride pack from twelve individual cells. This type of battery is not as susceptible to “memory effects” as Nickel Cadmium batteries, although it is not recommended that the unit be given short-

term charges or left on charge for prolonged periods of time. It is recommended that the battery is completely discharged and charged at least once every three months.

Either the GEM wall charger or the GEM car charger may be used to charge the unit. The wall charger may take as long as 5.5 hours to fully charge the unit. The car charger will charge faster but may take as long as 3 hours to fully charge the unit.

The heater can be run while the battery is charging however it will extend the time required for a full charge.

## **2.4 Turning Heater On/Off**

The heater is turned on by selecting “1” on and turned off by selecting the “0” on the black rocker switch (see figure 4 below).



**Figure 4**



### **3 Troubleshooting**

<b>Problem</b>	<b>Corrective Action/Reason</b>
Unit does not turn on - Indicator light does not come on	Charger battery / Battery discharged Check battery to controller connection / bad connection Contact Factory Service.
Heater does not get warm with indicator light on	Check heater connections / bad connection Contact Factory Service.
Battery will not charge	Check charger / bad charger or connection Contact Factory Service.
Heater gets too hot >160°F Heater element or 120°F on the GEM	Contact Factory Service