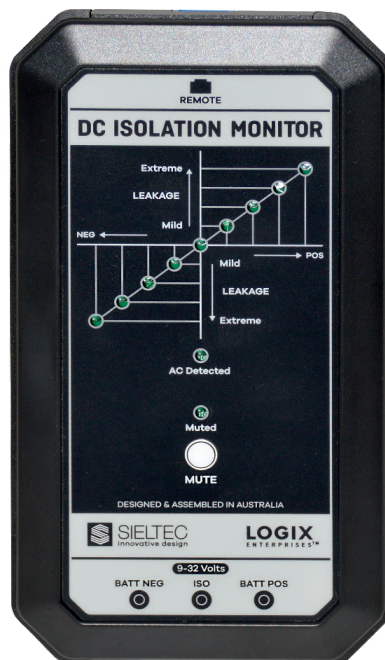




# HIM-2

## Hand Held DC Isolation Monitor



## User Manual

Issue 1.0

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This manual is not printed with product distribution for environmental and cost reasons.

Document is available with QR scan of QR code on box or product ensuring latest version of manual is provided.

**Statement of Appreciation**

Thank you for purchasing this HIM-2 from Sieltec. We understand that with this purchase comes a responsibility for Sieltec to ensure the product is fit for purpose and provides many years of trouble free service. If you are not satisfied with this product please contact Sieltec support and we will do all we can to rectify any problem relating to this product.

# HIM-2 DC Isolation Monitor

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# 1 Introduction

## 1.1 Typical application

Metal hulled vessels sometimes comply with a system design for the hull to be isolated from the negative or positive battery terminals. This is referred to as an electrically floating hull design. If a vessel is designed for an electrically floating hull, it is important that the hull be isolated from the electrical installation for the life of the vessel. The reason relates to preventing corrosion of the hull so it is quite important for this isolation to be maintained.

In some other use cases the isolation of subsystems can be important to reduce the impact of Galvanic or Leakage Current corrosion. The DC isolation monitor provides peace of mind that the isolated system maintains isolation.

During manufacture of these vessels it is important to constantly remain vigilant to the need for isolation. Once isolation is breached, if not detected quickly it can be very time consuming to identify the breach. The HIM-2 is specifically designed for manufacturing and service personnel to monitor and identify isolation breaches that can be the cause of serious corrosion problems in the future.

## 1.2 Solution

The HIM-2 provides a simple secure way to monitor and alert the engineering staff if the hull isolation is breached. The HIM-2 is supplied with red, black and yellow 1 metre long leads with stackable banana plugs on one end and large alligator clips on the other. The red and black connect to both the positive and negative battery terminals. The yellow “hull” lead is securely electrically connected to the hull or any sub-system that requires electrical isolation

If the hull has a “leakage” towards the positive battery terminal the LEDs progressively travel up and to the right, through two yellow LEDs and two red LEDs until the last red LED is illuminated. In this case the hull potential is very close to the positive battery terminal voltage.

Similarly, if the hull has a leakage towards the negative battery terminal, the LEDs progressively travel down and to the left, through 2 yellow LEDs and two red LEDs until the last red LED is illuminated. In this case the hull potential is very close to the negative battery voltage.

The device also has an indicator light for the presence of AC voltage on the hull. If the hull has even a small 50Hz AC voltage on the hull, this light will indicate that AC voltages have been detected.





*Figure 2. HIM-2 Unit with leads*

If the hull has a dead short to the positive or negative battery terminal, the red LED at the extreme end of the graph will illuminate. In this case an alarm will sound to indicate a problem. The alarm can be muted by pressing the mute switch. When muted, the green mute light will illuminate. When the short is removed, the alarm will stop and the mute command will reset so if it happens again the alarm will sound.

If the alarm needs to be silenced permanently, simply press the “Mute” button for 2 seconds. The mute LED will illuminate and the HIM-2 shows the relationship between the hull and the positive or negative battery terminals. If the hull is electrically floating, the green light in the centre of the graphical display will be illuminated. The alarm will not sound again. This mute function can be reset to normal operation by pressing the mute button again.

The HIM-2 can also provide contact closure for external alarms or reporting. A relay provides two separate sets of normally open or normally closed contacts available through the RJ45 connector on the end of the unit. The RJ45 connector also has access to a mute input and ground. This is to provide a remote mute function with the same functionality as the mute button.

## 2 Installation

### 2.1 Connection to Hull

The hull connection should be made to a location that allows a solid connection using the alligator clip on the yellow banana lead supplied. The other end of the banana lead plugs into the yellow banana socket on the handheld unit.



### 2.2 Connection to Battery Terminals

The unit internally is protected by 300mA resettable fuses. In the unlikely event of a problem, these increase resistance to reduce current flow. They do not need to be “reset” at all as this is automatic.

The battery connections can be made using the red and black banana leads provided. The red alligator clip is secured to the positive battery potential and the black alligator clip is connected to the negative battery potential.

The device is reverse polarity protected in case of an error in battery supply connection.

### 3 Connection to external devices



The 8 pin RJ45 connector provides an interface to external devices in cases where other alert systems are required. A relay has both normally open and normally closed contacts presented at the 8 pin connector. If pin 8 (mute) is connected to pin 1 (-ve) the alarm will mute.

*Table 3-1. - RJ45 Wiring Connector (Alarm Interface)*

Pin	Identifier	Meaning
1	-ve	Vessel Negative supply
2	Normally open	To remote alarm 1
3	Relay common	To remote alarm 1
4	Normally closed	To remote alarm 1
5	Normally open	To remote alarm 2
6	Relay common	To remote alarm 2
7	Normally closed	To remote alarm 2
8	mute	Mute - active low

### 3.1 Typical Remote Solution

A typical remote solution may be on a larger vessel where a louder or more local audio alarm is required. The configuration of the alarm to be individually designed.

The relay has two poles so two separate configurations can be accommodated. The second pole may be used to drive an external reporting device such as a Victron CerboGX to report any problems to the VRM reporting platform.

The HIM-2 can also simply be connected to the Sieltec CPM-1 Corrosion Parameter Monitoring board which is WIFI connected to an online logging portal if remote logging is required. This connection is through a standard CAT5 cable from the HIM-2 RJ45 and the "Alarm Input" RJ45 connector on the CPM-1. The HIM-2 alarm status can then be observed and logged on the monitoring web portal.

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## 4 Technical Specifications

*Table 4-1. Specifications*

Power Supply	
Supply Voltage	9 - 30 Volts DC
Supply Protection	Continuous reverse polarity protection
Supply current	12mA @ 12V    Alarm = 45mA
Hull cable current	0.0mA if the hull is floating. 0.45mA if at extreme Pos or Neg @12V
Power Supply and Hull connector	4mm Stackable Banana Plugs
Relay connector	RJ45
Maximum Relay Current	0.8 Amps, 30V normally open and normally closed contacts
Remote alarm connector	RJ45 Cat 5 Straight through cable