

# BHM Electronics

## Watch Alarm Instruction Manual



Display model WAGD-1  
Junction Box model WAJB-1

## Overview

The BHM Watch Alarm is designed to be installed on the bridge or wheelhouse of a vessel and activated when the vessel is under way. If a button on the Display is not pressed every few minutes an alarm sounds to alert the rest of the crew that there may be no one on watch.

The system consists of two main parts:

The Junction Box contains an alarm buzzer and connections for power, external alarm, automatic pilot and the Display. It runs independently from the Display, so once set the watchkeeping alarm will sound even if the Display is turned off. The internal clock has a backup battery so it will continue to keep time if the power is disconnected.

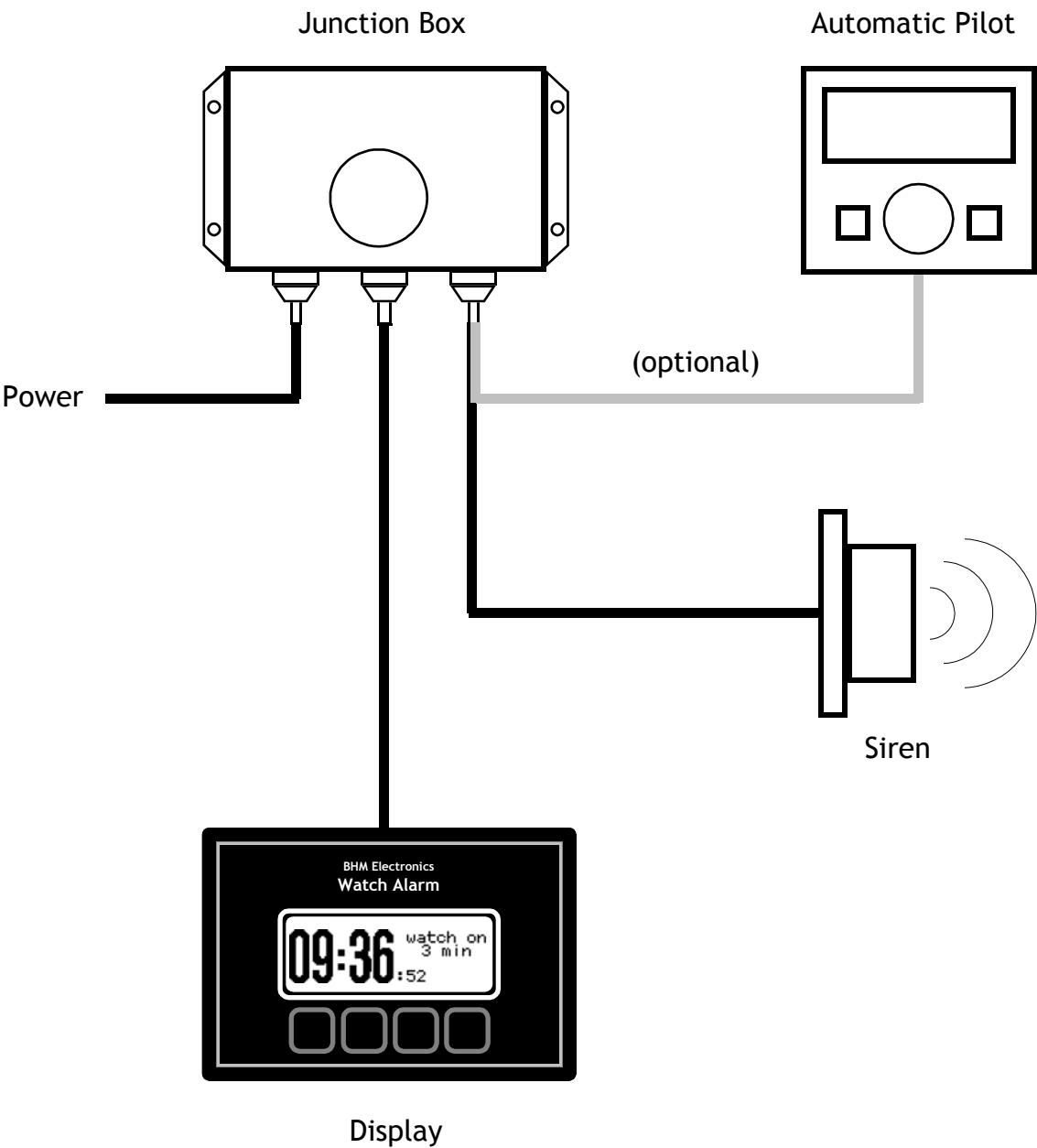
The Display shows the time of day and allows the watchkeeping period to be changed, watchkeeping turned on or off, and the alarm cleared.

**Important:** This Watch Alarm is only intended to be used as a safety aid. Its operation can be affected by external factors beyond the manufacturer's control including equipment failure and improper use. It must never be used to replace safe watchkeeping practices.

## Packing List

quantity	item	part number
1	Instruction Manual	
1	Watch Alarm Display with mounting bracket	WAGD-1
1	Watch Alarm Junction Box with 2-metre power cable with 2-metre display cable	WAJB-1
1	siren with 5-metre cable	
10	#6 x 1/2" self tapping screws for Display bracket, Junction Box and siren	

# Interconnection



## Junction Box Installation

The Junction Box has an alarm buzzer on the front, so it should be mounted somewhere close to the watchkeeper's position on the bridge.

### Wiring

Loosen the four screws from the top to remove the cover from the Junction Box.

The wiring terminal connections are shown on the next page.

Run the supplied white power cable to a power source (12 or 24 volts DC) via a fuse or circuit breaker. Do not connect it to the power until the installation is complete. The Junction Box does not need a power switch as it uses a minimal amount of power when the Display is off and can be left running permanently. A fuse or circuit breaker is required though to allow for power to be disconnected if servicing is required and to protect the wiring between the power source and the fuse inside the Junction Box.

Run the supplied grey display cable to the position the Display will be mounted in.

Mount the siren and run the siren cable to the Junction Box.

**Note:** the siren is very loud. To prevent hearing damage do not mount it too near where someone may be sitting or standing, or near the head of a bunk.

When replacing the cover make sure the red LED light fits through the small hole in the cover.

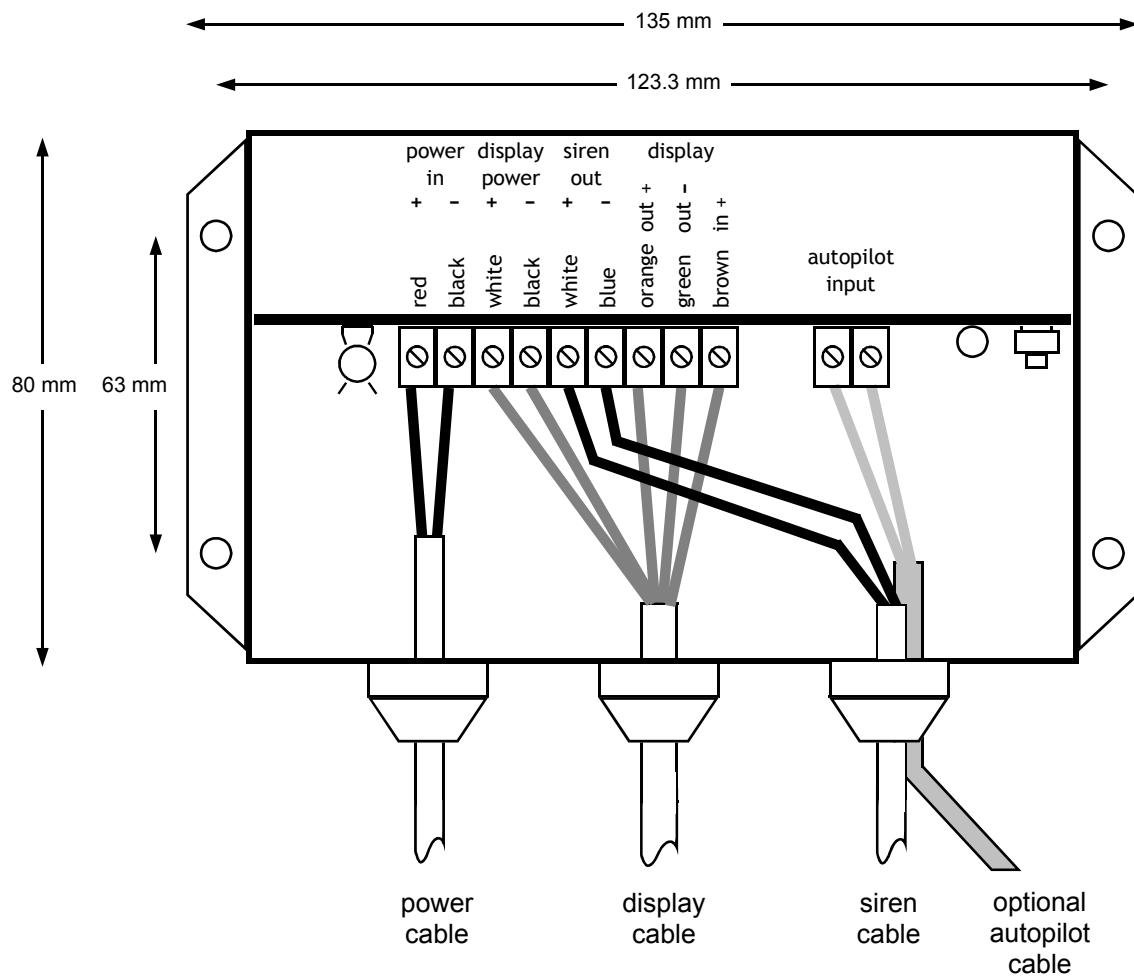
### Automatic Pilot

If desired the Junction Box can be connected to an automatic pilot so that the watchkeeping function turns on whenever the pilot is on.

To turn on watchkeeping the automatic pilot must supply a steady voltage to the two terminals labelled 'autopilot input' whenever the pilot is engaged. The voltage can be anywhere between 5 and 30 volts and the polarity does not matter.

With most pilots this voltage can be taken from a drive or clutch output, but the connection at the automatic pilot end will vary depending on the model and the pilot's manual will need to be checked.

## Junction Box Drilling Pattern and Terminal Wiring

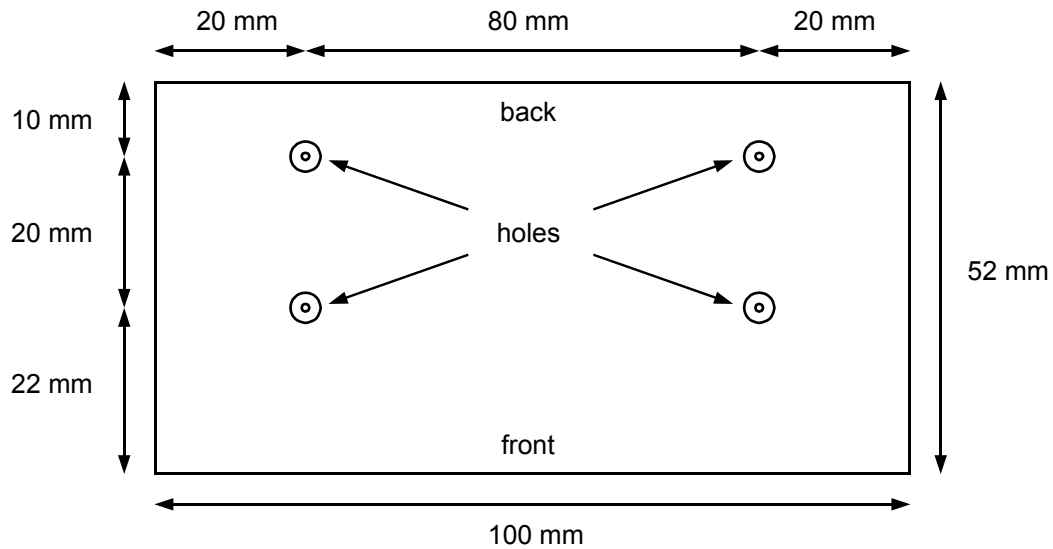


# Display Installation

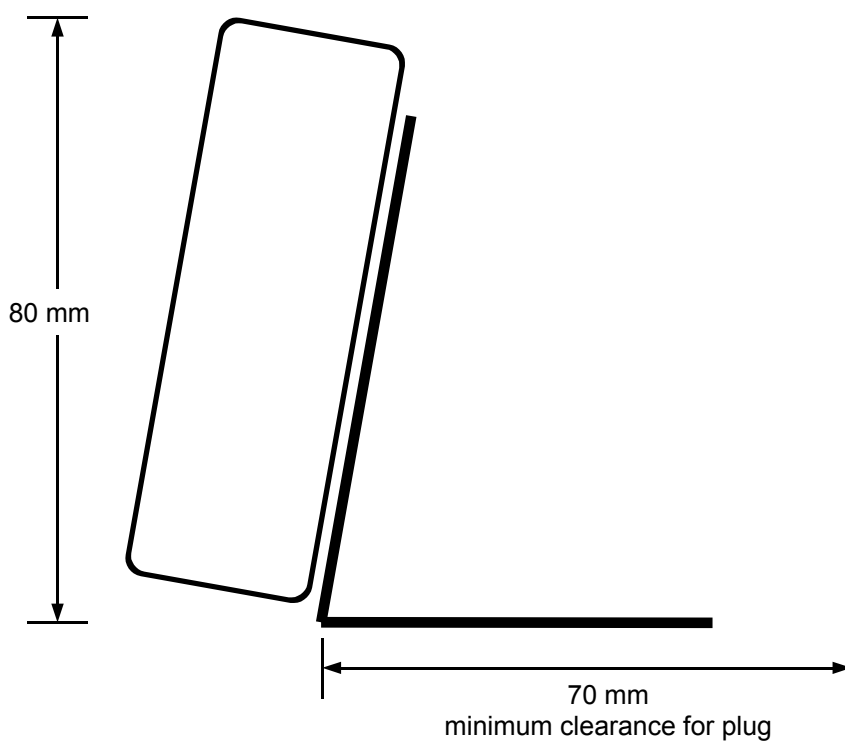
## Bracket Mounting

The Display is supplied with a mounting bracket attached. For overhead mounting the bracket can be removed and turned around.

Display Bracket Drilling Pattern



Side View of Bracket Mounting

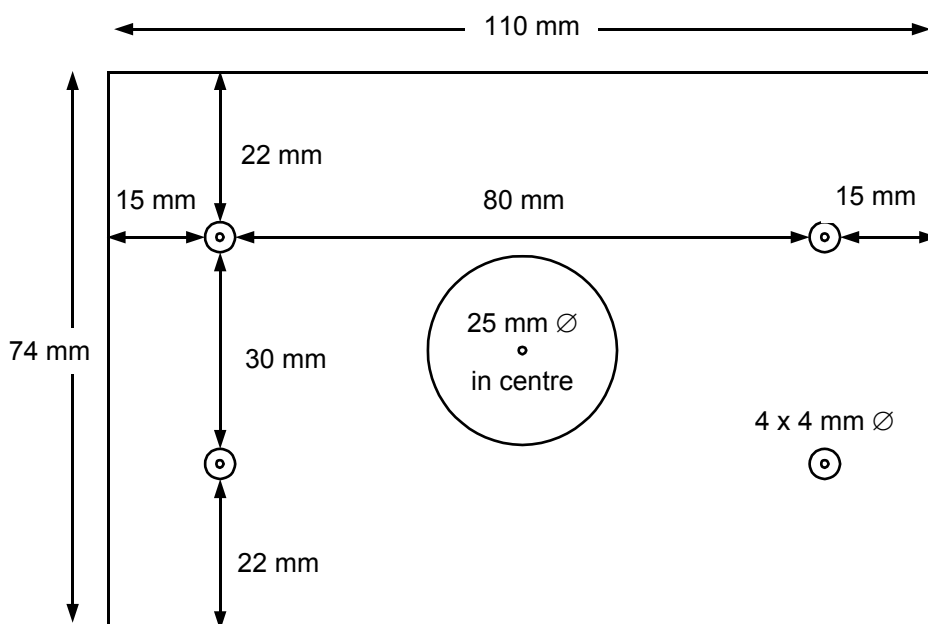


## Console Mounting

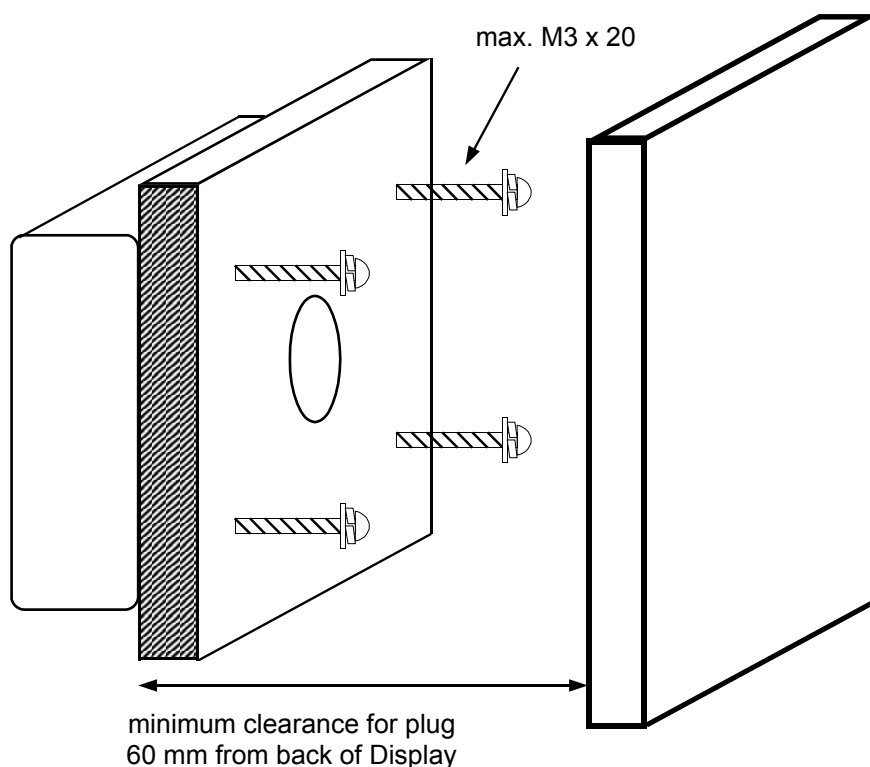
The Display can be mounted directly on a flat surface by removing the bracket.

Drill mounting holes using the pattern below. Bring the connector end of the Display cable through the central hole and plug it into the back of the Display. Mount the Display using the screws removed from the bracket.

Display Console Mounting Drilling Pattern



Rear View of Console Mounting



## **Final Set-up and Testing**

After the Junction Box, Display and siren are mounted and connected together the Junction Box power cable can be connected to the power supply.

As soon as power is present the red light on the cover of the Junction Box should start flashing at one second intervals.

If needed see the next page for operating instructions.

Turn the Display on. After a few seconds it should show the time of day. To test the alarms set the watch time to one minute and allow it to expire. After one minute the display should start flashing to indicate the time has expired. The red light on the Junction Box cover will stay on until the alarm is cleared. One minute after the watch period expires the buzzer on the junction box will start sounding, then after another 30 seconds the external siren will sound.

If an automatic pilot has been connected confirm that watchkeeping turns on and off with the pilot.



## Operating Instructions



### Power

Press the power button (button 4 in the picture above) to turn the Display on. Press and hold the power button for about one second to turn it off.

The main screen view shows the time in hours, minutes and seconds. When watchkeeping is turned on it also shows the watchkeeping period in minutes.

### Watchkeeping

Press the WATCH button. The Display will ask to confirm turning watchkeeping on, or off if it was already on. Press cancel (button 1) or OK (button 4).

Once watchkeeping has been turned on the Watch Alarm will wait for the set watchkeeping period. After this time passes the Display will show a message prompting for any button to be pressed and the red light beside the power button will start flashing.

If no button is pressed for one minute then the alarm buzzer on the Junction Box will sound. After another 30 seconds the siren will sound. Pressing any button will stop the alarm.

Pressing any button at any time will also reset the watchkeeping countdown before the period ends. For example if the watchkeeping period is set to three minutes and a button is pressed before it ends then the countdown will be reset to the full three minutes.

The watchkeeping alarm will continue to operate even if the Display is turned off. Turn the Display back on to clear the alarm.

## Automatic Pilot

If an automatic pilot is connected it will turn watchkeeping on whenever the pilot is on. Watchkeeping can not be turned off while the pilot is on.

## Setting the Watchkeeping Period

Press MENU then button 2. Press - (button 2) and + (button 3) to adjust the watchkeeping period. The period can be set from one to 10 minutes. Press done (button 1) when finished.

## Changing the Passcode

For security a four digit passcode number can be set. This prevents any changes to the settings being made, including turning watchkeeping on or off, without entering the passcode.

Press MENU then button 3. The passcode can be set for any number from 0001 to 9999. Set it to 0000 to turn off the passcode.

Press - (button 2) and + (button 3) to adjust each digit. Press ➡ (button 4) to select the digit to change. Press done (button 1) when finished.

The Display will ask you to confirm the change of passcode. Press cancel (button 1) or OK (button 4).

**Remember to make a note of the new passcode.** Once a passcode is set up no settings can be changed without re-entering the passcode.

If the passcode is lost it can only be cleared by pressing the reset button inside the Junction Box. The reset button is located under the cover beside the red indicator light.

## Entering the Passcode

Once a passcode has been set you will be prompted to enter it every time you press the MENU button to change a setting or press the WATCH button to turn watchkeeping on or off.

Press - (button 2) and + (button 3) to adjust each digit. Press ➡ (button 4) to select the digit to change. Press done (button 1) when finished.

## Setting the Clock

Press MENU then button 4. Press - (button 2) and + (button 3) to adjust the hours or minutes. Press ➡ (button 4) to select either hours or minutes to change. Press done (button 1) when finished.

## Technical Information

### BHM Watch Alarm Junction Box, model WAJB-1

supply voltage	10 V to 28 V DC
current	2 mA (display off, alarms off)
internal fuse	500 mA, M205
siren output	12 V DC, maximum 250 mA (see note below)
backup battery	CR2032RV, vertical solder-in 3 V lithium coin cell
autopilot input	5 V to 30 V DC, 3300 $\Omega$ load

### BHM Watch Alarm Graphical Display, model WAGD-1

supply voltage	8 V to 30 V DC
current	70 mA at 12 V, 35 mA at 24 V

## Siren Output

The external siren output voltage is 12 V DC, or the supply voltage less 2 V, whichever is less. The output is designed to drive a piezo siren of up to 250 mA current draw. Alternatively the output can be used to drive a relay for switching another alarm circuit.

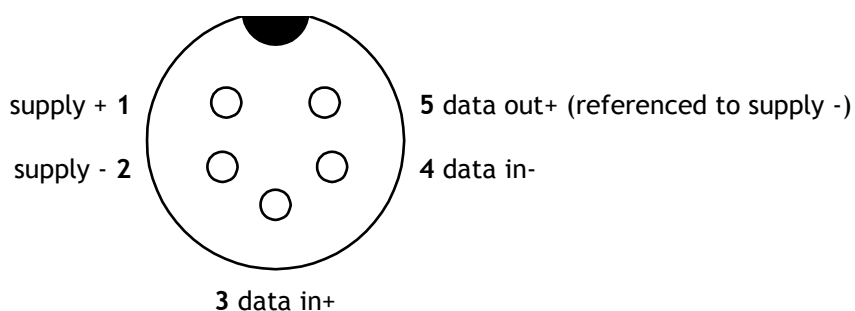
## Backup Battery

The Junction Box only draws about 2 milliamps when the display is turned off, so it can be left connected permanently to the ship's power. If power is removed a backup battery keeps the clock running. This battery is capable of powering the clock continuously for several years.

After the battery is discharged the Watch Alarm will continue to operate normally except it will not keep the correct time if the power is removed. The battery is soldered to the circuit board inside the Junction Box and should be returned to the supplier for battery replacement.

## Display Connector

The connector on the back of the Display is a 5-pin male chassis round metal 'microphone' plug. Looking at the chassis connector or the back of the cord socket pin 1 is located anticlockwise from the alignment notch.



Manufactured by  
**BHM Electronics**  
Invercargill  
New Zealand

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