

INTERNATIONAL LIFT EQUIPMENT LTD

HW2013

Hand wind Position Unit Manual



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Introduction

The I.L.E. hand wind positional unit constantly monitors and displays the lift floor position. The unit displays the floor designation via an LCD display, indicating whether or not the lift is at floor level, just below floor level, just above floor level or in between two designated floors. It achieves this via connection to the floor level proximity switches, tape head channels, Schmersal USP (via the programming interface) or CAN-X absolute shaft encoder board which all remain active whilst the power is removed and are fed from the 24VDC battery backed supply within the CAN-X series controllers. (The unit will work on a voltage range of 10-30VDC)

The positional information will assist engineers on site manually moving the lift (with the power off) by knowing where the lift is in the shaft. Also when the lift is at floor level the on board buzzer sounds to inform the person moving the lift. The unit is fully site programmable, therefore reducing the need for specific floor designation settings at the ordering stage. Programming is achieved via four buttons to select and store the desired floor designations at the time of setup. During setup, the LCD display will be illuminated to provide better readability if the surrounding light is dim. The LCD display will also be illuminated when the unit is operating in hand wind mode. Once set, the floor designations will be stored and will remain set if the power is removed.

The unit comes in 3 different versions;

- 1) Standalone, DIN rail mounted with separate hand wind switch within the control panel.
- 2) Pre-wired in a box with hand wind switch to plug directly into the CAN-X controllers.
- 3) Mounted in a box with a hand wind switch to be site wired into an existing controller or as a standalone unit.

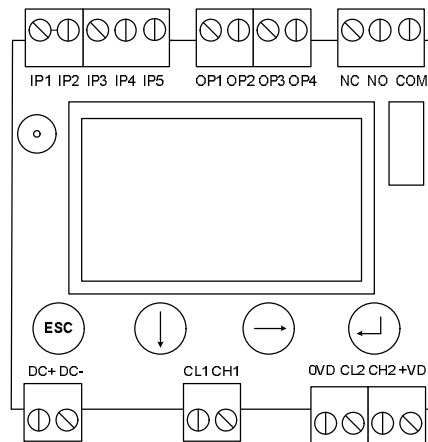
The unit has 2 CAN ports, one to communicate with a car mounted accelerometer board for speed and direction indication during the hand wind process (see accelerometer section of this manual) and one to communicate with the drive for driven battery rescue systems.

A relay is fitted on board to stop the lift during hand winding when an over speed condition is detected. (In conjunction the accelerometer board)

The unit is also backward compatible so can be used on existing Skycom or Interflite controllers to replace the old model units (HW2000 & HW2008) or as an upgrade from their existing buzzer/lamp systems.

Board Layout

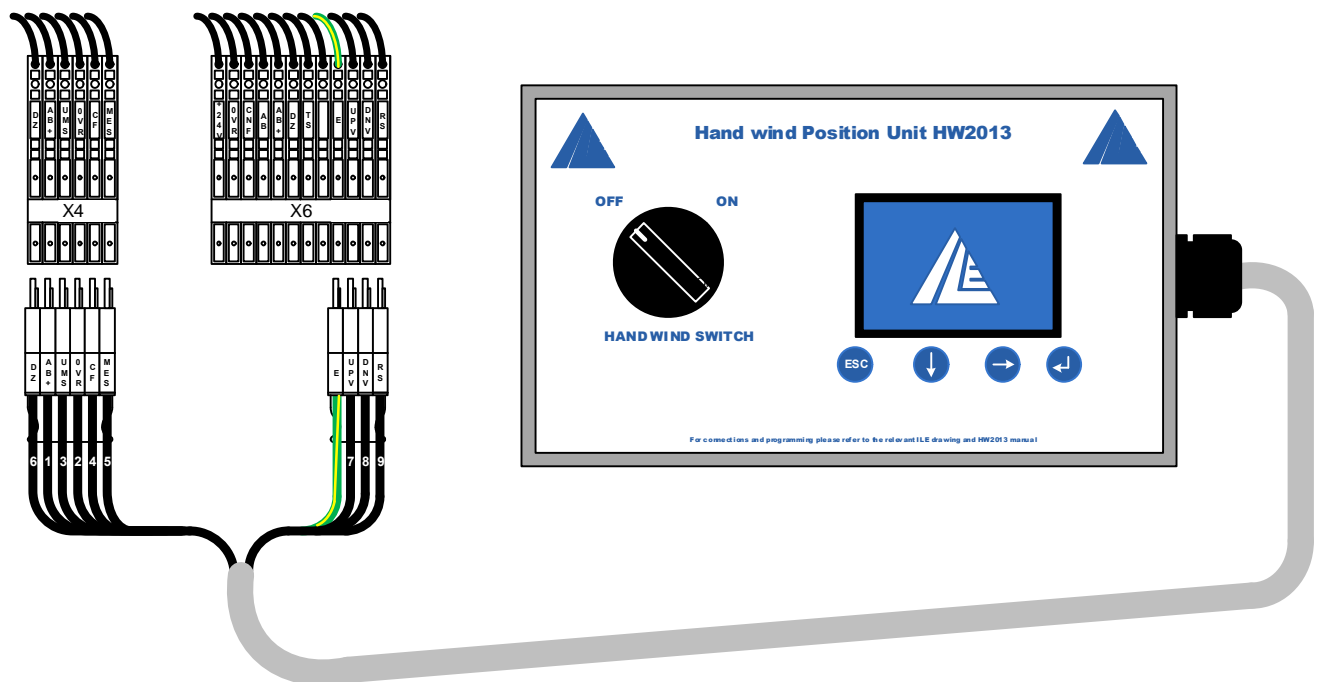
The layout below shows the basic layout of the board and the connections.



Connections

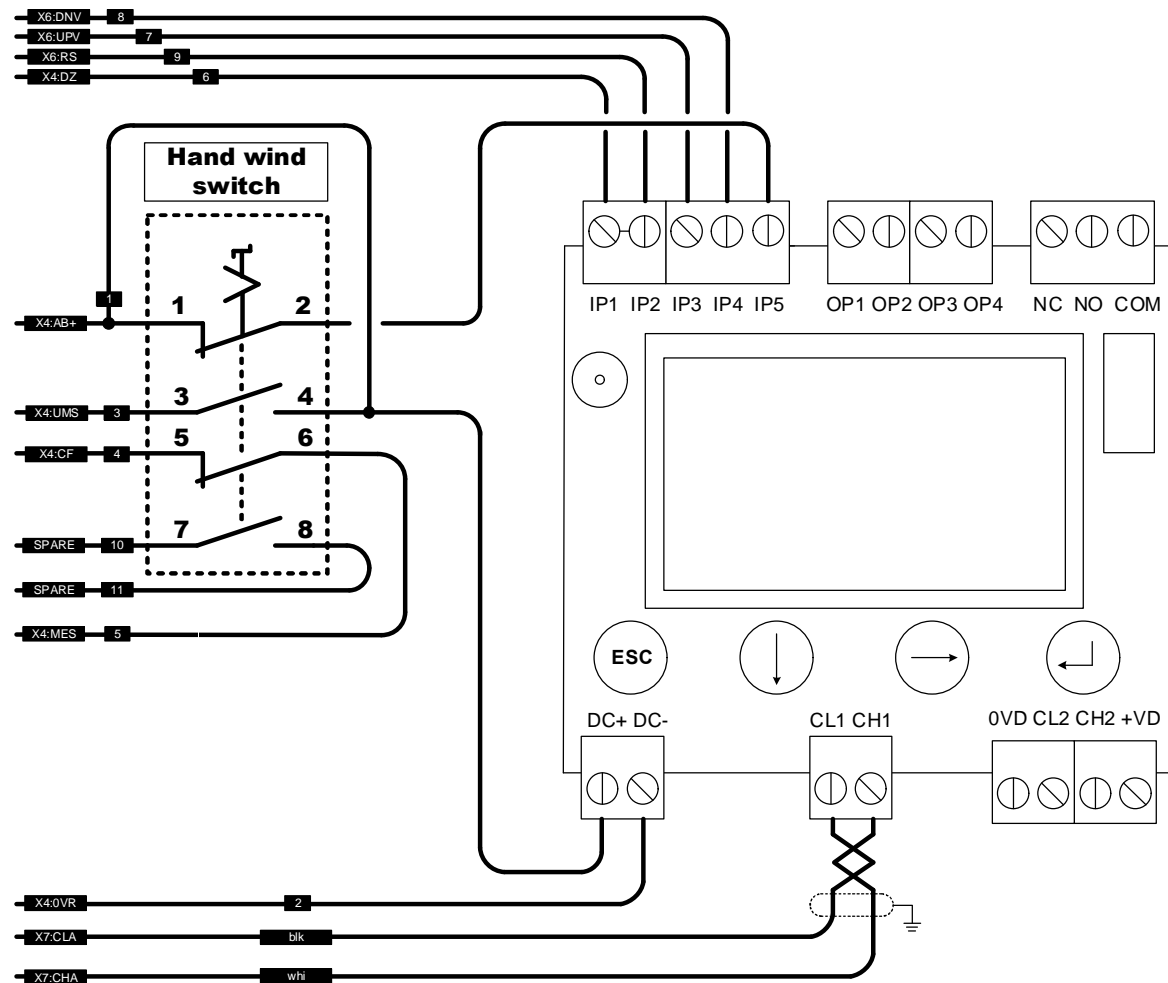
When the HW2013 is to be used on the CAN-X and CAN-X+ controllers the unit is pre-wired to plug directly into the terminal rail. The plugs are labelled as X4 and X6 and plug into the corresponding sockets on the controller terminal rail.

If the optional accelerometer is used there will be a second cable pre-wired to the unit this will connect to the controller terminal rail at location X7.



CAN-X & CAN-X+ (without shaft encoder)

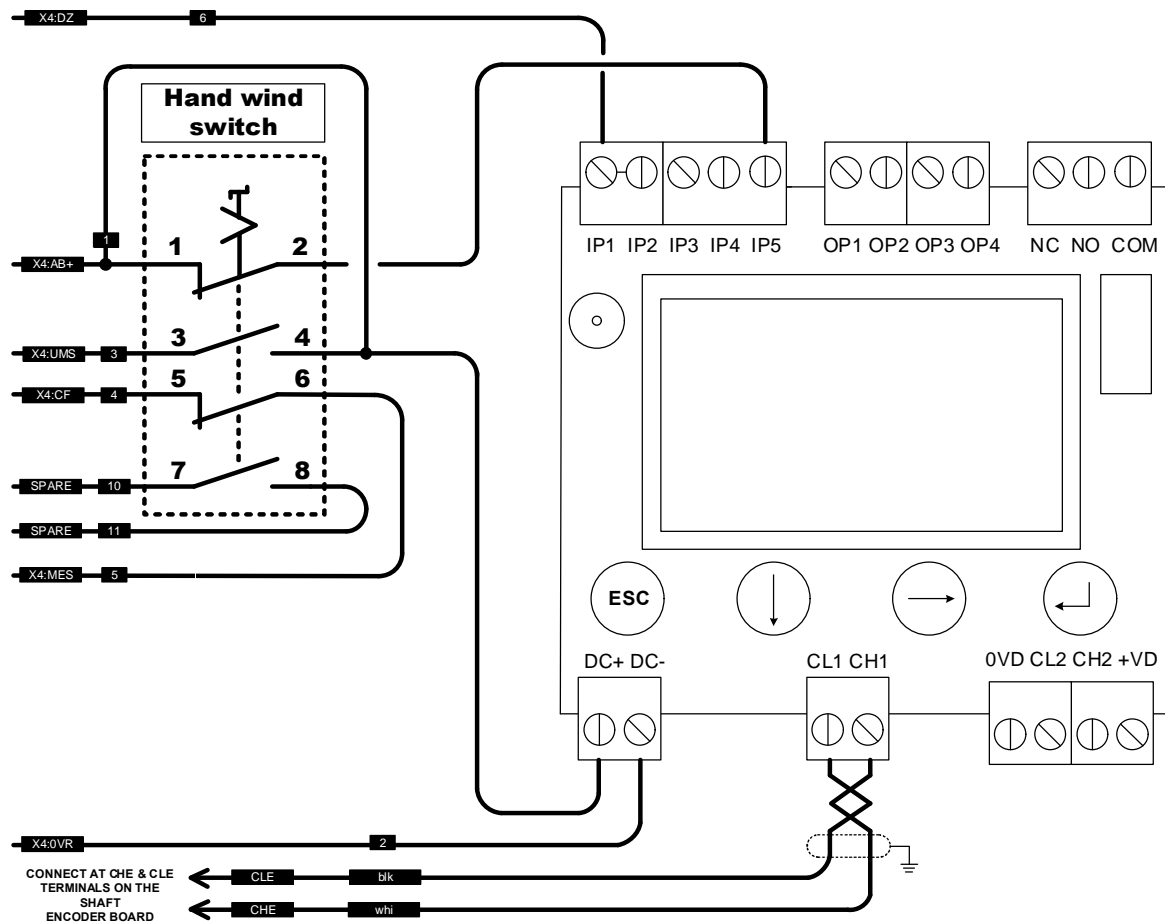
Internal wiring connections below with core numbers for the pre-wired CAN-X series hand wind unit.



When the unit is fitted directly to the din rail in CAN-X series slim line MRL controllers the hand wind switch is fitted separately along with the rescue controls. The connections are the same but as it is hard wired in the controller the core numbers will not be present. On the wiring diagrams for all CAN-X controllers the internal connections of the hand wind unit are shown so their interaction with the control circuit can be seen.

CAN-X+ (with shaft encoder)

Internal wiring connections below with core numbers for the pre-wired CAN-Xseries hand wind unit.

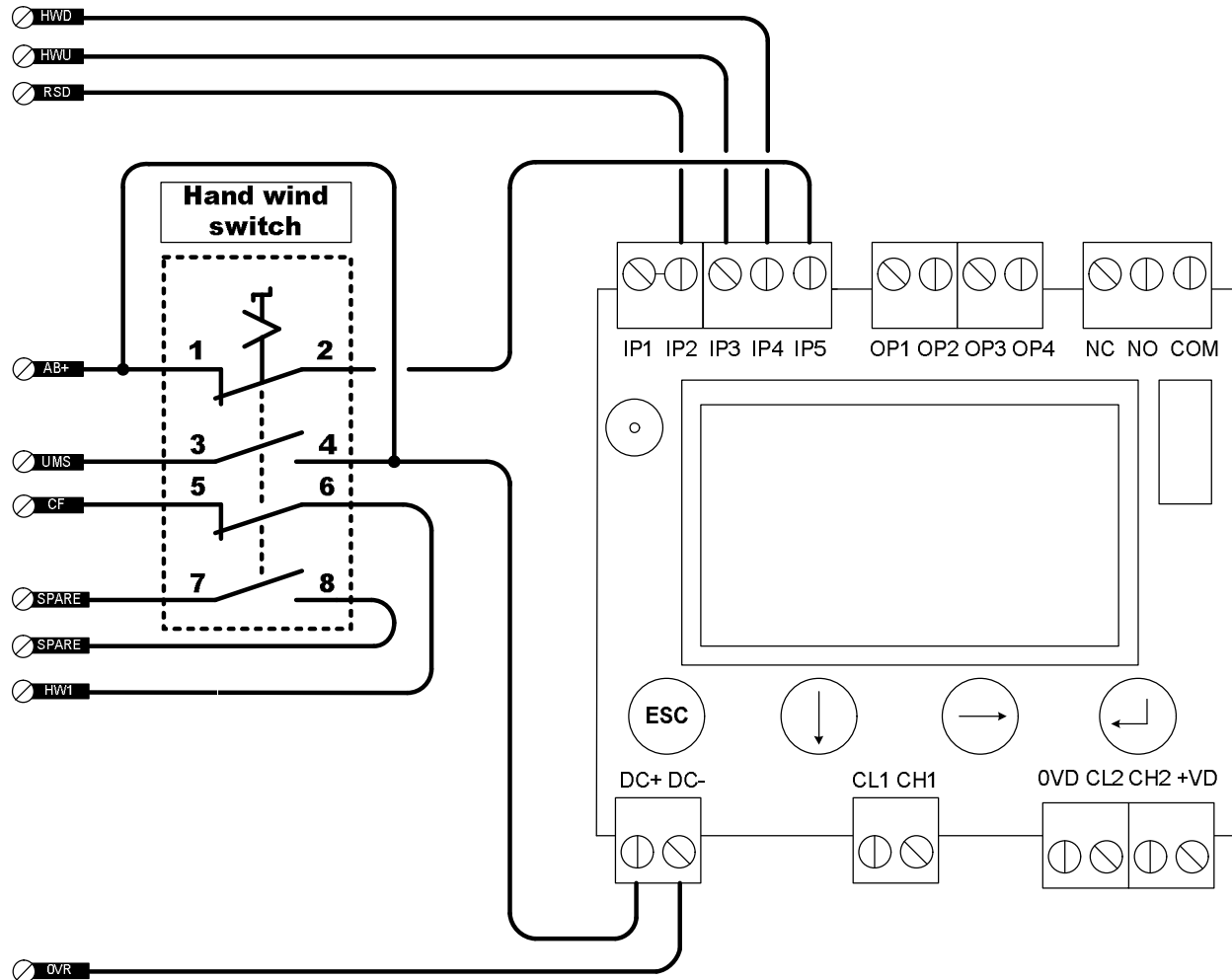


When the unit is fitted to a CAN-X+ with absolute shaft encoder the CAN connections connect directly to the shaft encoder board at terminals CHE and CLE. The unit is then programmed as “Shaft Encoder” in the advanced modes menu. Once programmed as Shaft encoder the unit “Self-programs” its floor designations based upon the floor text programmed in the CAN-X+ controller.

Connection to new Skycom controllers

The diagram below details how the hand wind unit is connected to new Skycom controllers.

NOTE; The connection to UMS is only required if the Skycom controller has unintended movement via over speed governor solenoid.



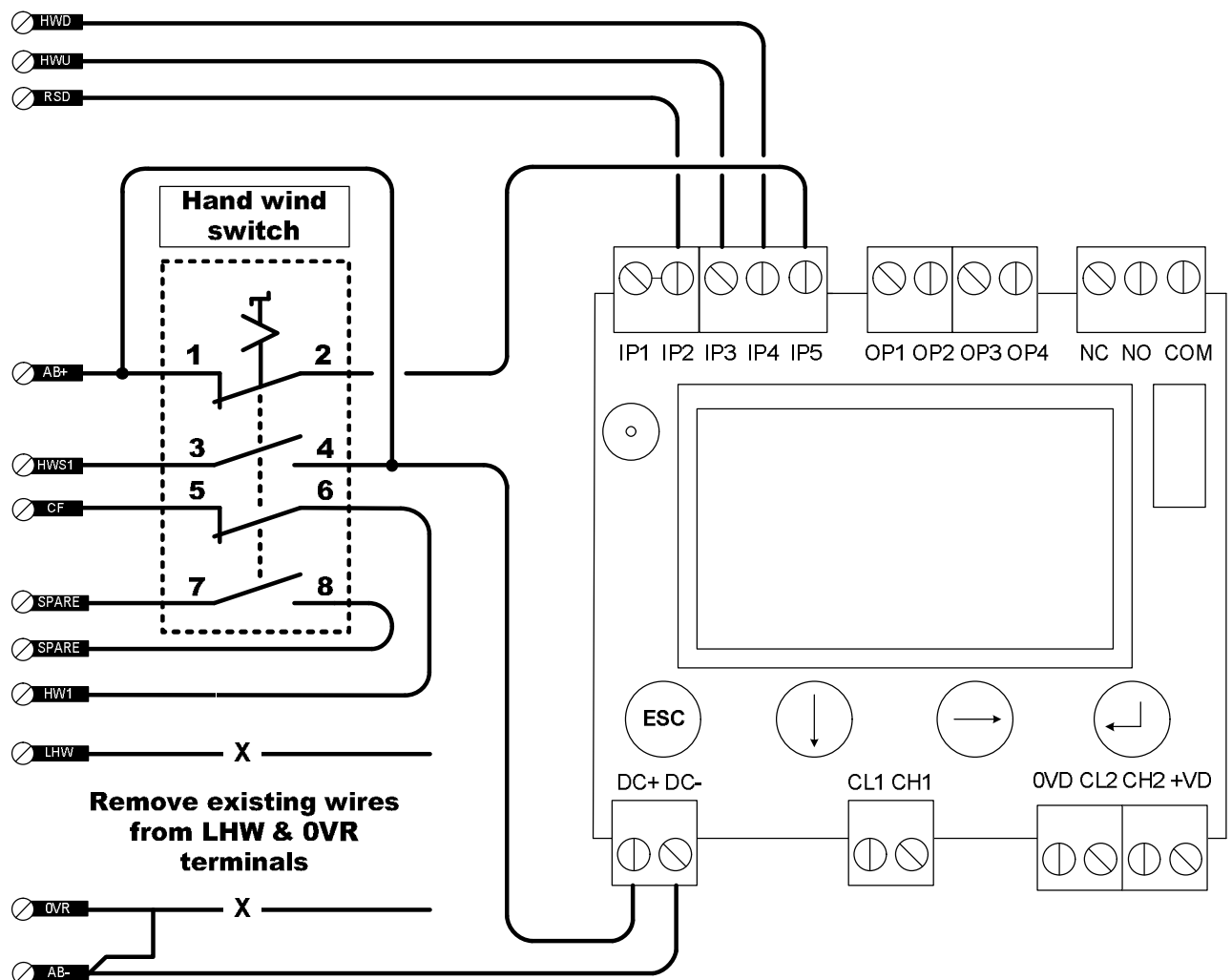
Connection to an existing Skycom controller

When fitting to an existing Skycom controller the above diagram should be used. As an existing Skycom controller will have a 12VDC battery backed supply so a link will need to be fitted between terminals AB- and OVR.

Connections when replacing an existing HW2008, HW2008G or HW2000

The following diagram should be used when fitting a new HW2013 to a Skycom controller that has an existing HW2008 or HW2008G. If a HW2000 needs replacing a separate 12/24VDC battery backed up power supply will need to be fitted for both the hand wind unit and the lift alarm circuit. This can be supplied separately and should be fitted in conjunction with a modified drawing specific for the controller in question.

NOTE; the connection to HWS1 is only required if the Skycom controller has unintended movement via over speed governor solenoid and connection LHW is only present on systems fitted with HW2008G. (Gearless controllers)



Programming

The HW2013 can be programmed with 2 digits of text to match the position indicators. The unit can operate in 3 different basic modes and 3 advanced modes to match the type of control system it is fitted to;

Basic modes

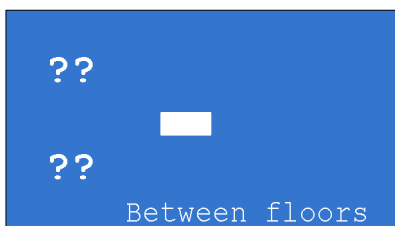
- 1) MSU/MSD/RSD (to suit Skycom or Interflite controllers)
- 2) UPV/DNV/DZ/RS (to suit CAN-X or CAN-X+ controllers)
- 3) MRL (to suit CAN-X or CAN-X+ MRL controllers using the accelerometer board)

Advanced Modes

- 1) Battery Rescue (to suit auto rescue systems)
- 2) Shaft Encoder (to suit the CAN-X+ Absolute shaft encoder)
- 3) Special (any special software builds)

The unit comes pre-programmed for the floor designations to match the controller when purchased together as a package, but if they need to be changed or it is purchased as a replacement or standalone unit the following procedures need to be followed.


NOTE: all programming should be carried out with the hand wind unit in the ON position. This will ensure the backlight stays on at all times.

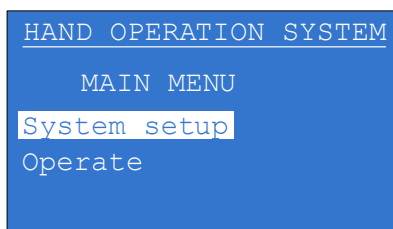



When the unit is powered up the ILE splash screen is displayed for 10 seconds this details the software version programmed into the unit.

The unit then reverts to its default position screen as shown below.

The default screen shows that the lift is between floors and at unknown position.

To enter programming mode press  and  buttons simultaneously for approximately 5 seconds, the following screen will then be displayed.




Press the  button on the highlighted "System setup" text.

HAND OPERATION SYSTEM

SETUP MENU



Select operating mode
Select total floors
Edit floor legends

Press the  button on the highlighted "Select operating mode" text.

HAND OPERATION SYSTEM

OPERATING MODE



Basic modes
Advanced modes
Diagnostic/Demo modes

Press the  button until the desired operating mode is highlighted and then press the  button. Basic mode should be used.

HAND OPERATION SYSTEM

OPERATING MODE

MSU/MSD/RSD
UPV/DNV/DZ/RS
MRL



Press the  button until the desired operating mode is highlighted and then press the  button.

HAND OPERATION SYSTEM

SETUP MENU

Select operating mode
Select total floors
Edit floor legends


Once entered the screen then reverts back to the previous screen.


Press the  button until "select total floors" is highlighted and then press the  button.


HAND OPERATION SYSTEM

Total Floors Served

4



To adjust the number of floors press the  button until the desired number of floors is highlighted. Once the number of floors has reached 63 it will revert back to the beginning.

Once the desired number of floors is highlighted press the  button.



NOTE: if the  button is held down the speed at which the number of floors revolves increases.

```
HAND OPERATION SYSTEM
SETUP MENU
Select operating mode
Select total floors
Edit floor legends
```



Once entered the screen then reverts back to the previous screen.

Press the  button until "Edit floor legends" is highlighted and then press the  button.

```
HAND OPERATION SYSTEM
Edit Floor Legends
Floor 1
Displayed legend 1
```



Press the  button until the floor number to be edited is highlighted then press the  button.

```
HAND OPERATION SYSTEM
Edit Floor Legends
Floor 1
Displayed legend  1
```



The 1st character to be edited is highlighted in white press the  button to scroll through the available character until the desired character is displayed then press the  button to move to the next character.

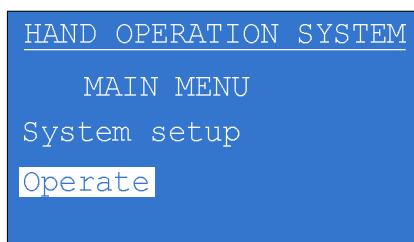
NOTE: If a single floor legend is required leave the 1st character blank and move straight to the second character.



```
HAND OPERATION SYSTEM
Edit Floor Legends
Floor 1
Displayed legend LG
```

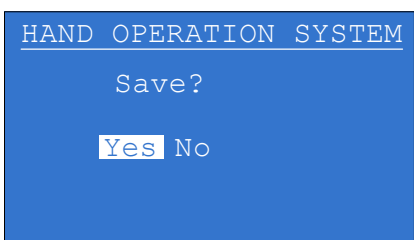
Once the desired designation for the current floor is displayed press the  button. The floor number will now be highlighted again. Press the  button to change the floor number to 2 then repeat the character editing process for this and all remaining floors.


```
HAND OPERATION SYSTEM
SETUP MENU
Select operating mode
Select total floors
Edit floor legends
```

Once all the desired floor legends are programmed press the  button, the screen will revert back to setup menu. Press the  button and the screen will revert back to the main menu.



Once in the main menu press the  button until "Operate" is highlighted then press the  button.



Press the  button on the highlighted "Yes" text. The screen then shows "saving please wait" once saved the unit will revert back to the main operation screen with "??" showing that the unit has not "found" itself yet.

Operation of the unit after set up

Once the unit has been set up it will show the "??" screen until the unit has determined the lift position. The unit will also revert back to the "??" screen if the unit is powered down fully, again until the unit has determined lift position.

Determining lift position CAN-X

If the units operating mode is set to UPV/DNV/DZ/RS or MRL to suit a CAN-X system the sequence of determining lift position is as follows;

Lift at mid shaft between floors

The hand unit will show lift position as "?? Between floors". Once the lift travels up or down to reset the unit will show travel direction (and speed if set to MRL) until the terminal floor level is reached. Once at terminal floor level the unit will show correct floor position.

Lift at mid shaft floor level

As above but the unit will initially show lift position as "?? At floor level".

Lift at top or bottom floor level

The unit initially show lift position as "?? At floor level" until the lift has travelled up or down by one floor.

Determining lift position Skycom / Interflite

If the units operating mode is set to MSU/MSD/RSD to suit a Skycom or Interflite system the sequence of determining lift position is as follows;

Lift at mid shaft between floors

The hand unit will show lift position as "?? Between floors". Once the lift travels down to reset the unit will show travel direction until the terminal floor level is reached. Once at terminal floor level the

unit will show correct floor position. if the lift is set to top floor reset the unit will not show the correct position until the lift has travelled to bottom floor level.

Lift at mid shaft floor level

As above but the unit will initially show lift position as “?? At floor level”.

Lift at bottom floor level

The unit will show the correct lift position and at floor level upon power up.

Lift at top floor level

The unit initially show lift position as “?? At floor level” until the lift has travelled down to the bottom floor level.

Available characters

The following characters can be displayed in either of the 2 floor legend positions available to represent the physical lift position.

+ - 0 1 2 3 4 5 6 7 8 9 ? A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Accelerometer board (optional)

It is a requirement of EN81-1, EN81-2 and EN81-20 to be able to monitor the speed and position of the lift whilst hand winding. To achieve this in an MRL installation where the machine is not visible it requires some sort of speed feedback from the lift car. The HW2013 can do this 2 ways the 1st is in conjunction with the CAN-X+ shaft encoder which is driven directly off the lift car or 2nd via the accelerometer board.

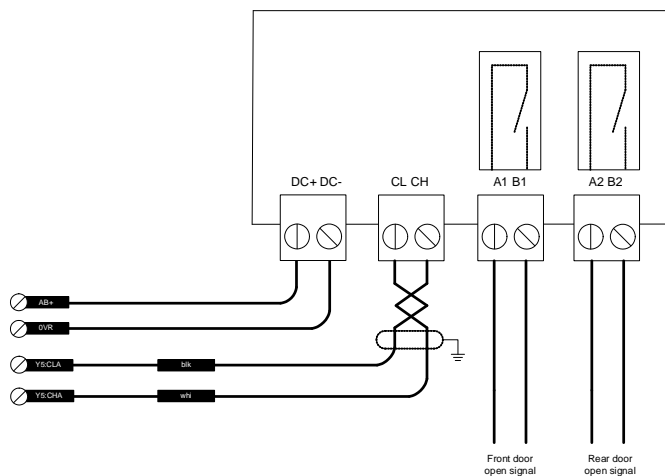
The accelerometer board allows us to get the speed feedback necessary for the hand wind unit to display the speed of the lift when using the CAN-X system in conjunction with simple positioning devices.

The optional accelerometer board mounts on the lift in the car top I/O unit of the CAN-X control system and is connected to the 24VDC battery backed supply and to the HW2013 via its CAN connection.

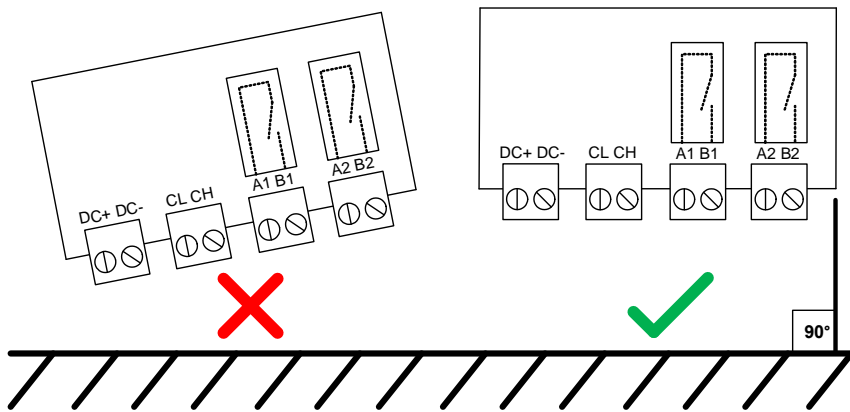
The unit has 2 onboard relays to allow the front or rear doors to be powered open once stopped and within door zone (UPS back of the door operator(s) is required)

Board layout

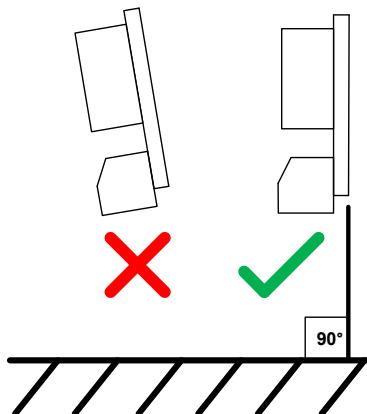
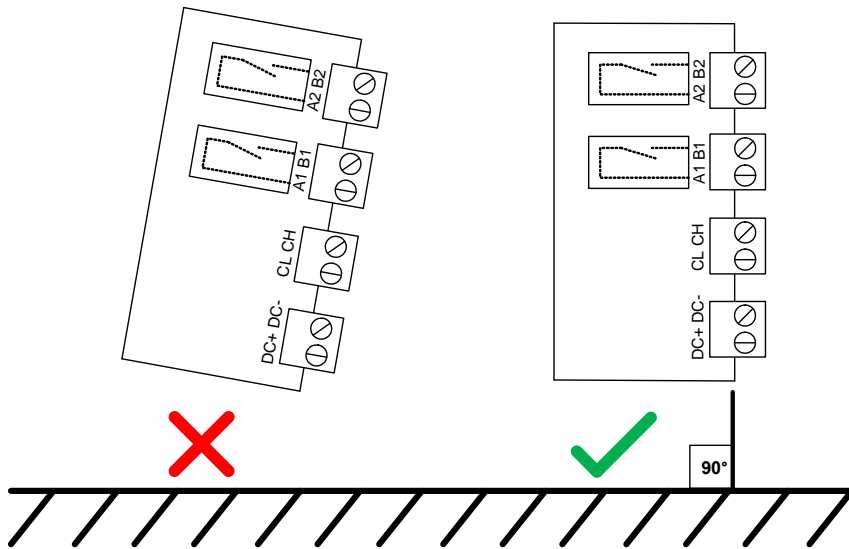
A simplified connection diagram is detailed below.



Correct installation



For the unit to show correct speed feedback the unit needs to be mounted perpendicular to the ground so whether it is mounted in the X, Y or Z plane it must fitted be 90° to the ground. If it is mounted out of plumb the speed will be different in the up and down direction and also either speed will be inaccurate.



Version	Changes	Date	Author	Checked	Approved
V1.0	Initial Version	10/04/14	J. Colquhoun	J. Miller	J. Colquhoun
V1.1	Shaft encoder	30/01/17	J. Colquhoun	N. Desai	J. Colquhoun