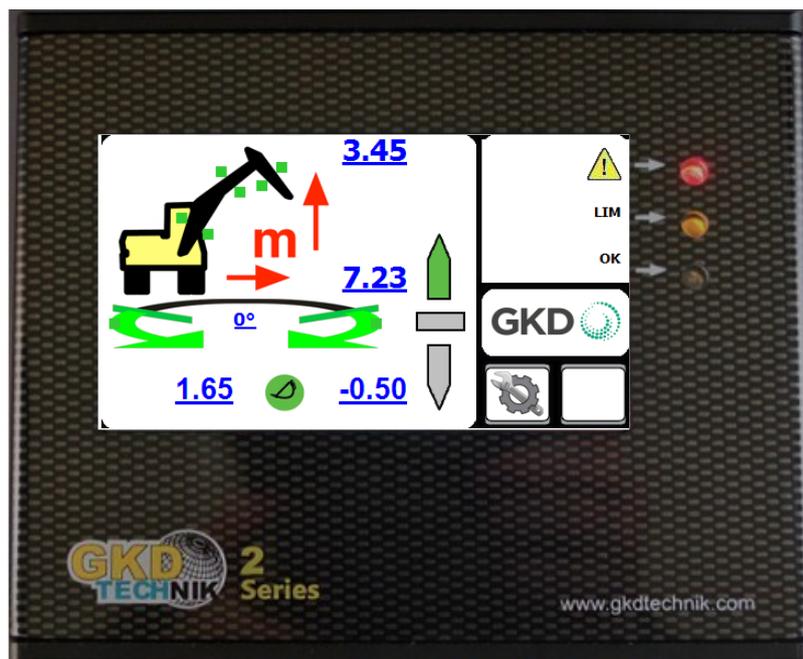




2 Series Height & Slew User Manual



Change History

Issue	Date	Changes	Job
V1.0	01/06/2021	Document created	

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Introduction

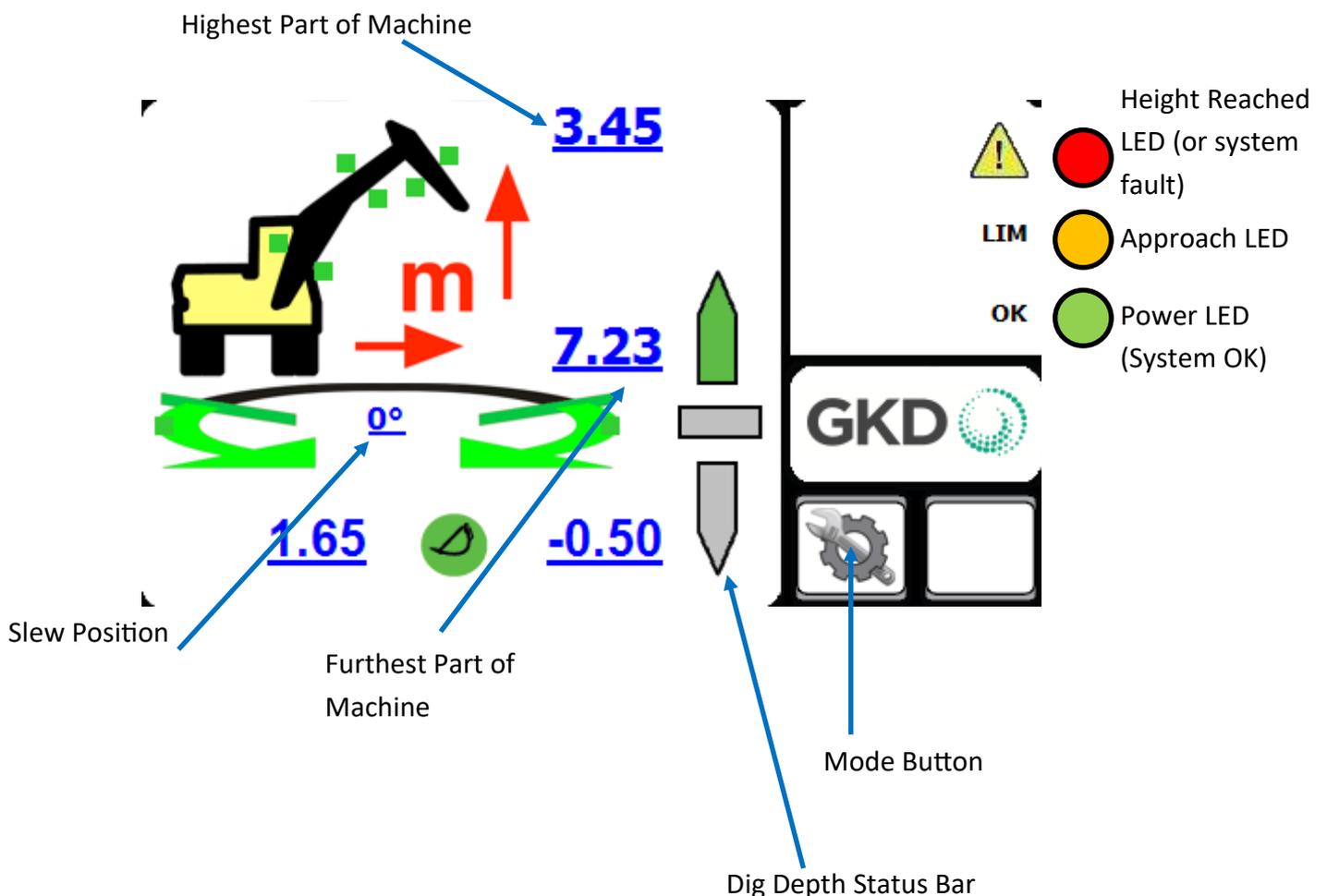
This is the operation manual for the 2 Series Height & Slew range of envelope restrictors.
This product is a safety product.

**WARNING - THIS INDICATOR IS NOT FOR USE IN EXPLOSIVE ATMOSPHERES.
ADJUSTMENT BY NON AUTHORIZED PERSONNEL WILL INVALIDATE THE WARRANTY.**

Operation

The 2 Series Height & Slew system is wired to automatically start whenever the machine is started. There is no operator ON/OFF control. At switch on the system will initially show a blank screen and the green LED on the front panel will blink. Once self tests are complete the indicator screen will illuminate. The system will automatically start in the lift mode.

Front Screen

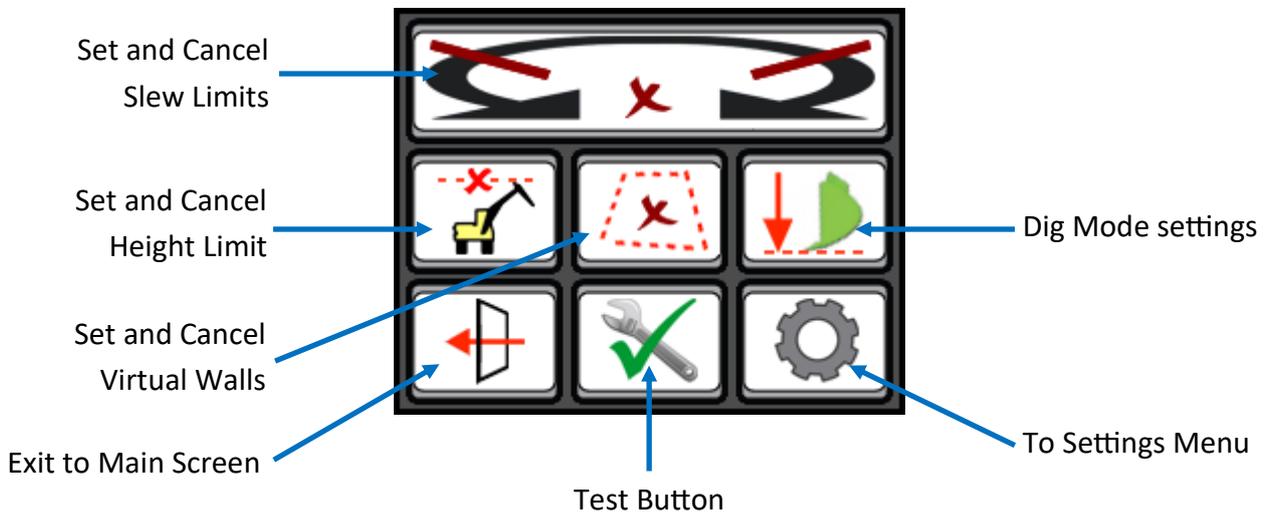


Mode Menu

From the main screen, press on the Mode button.



The following window should appear:

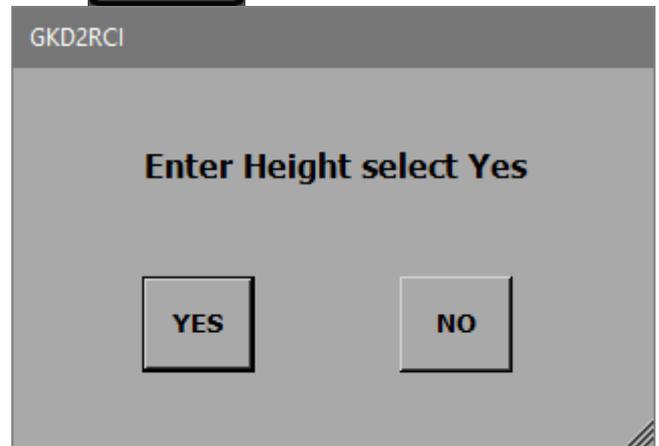


Setting a Height Limit

From the Mode Menu, press on the “Height Limit” button.

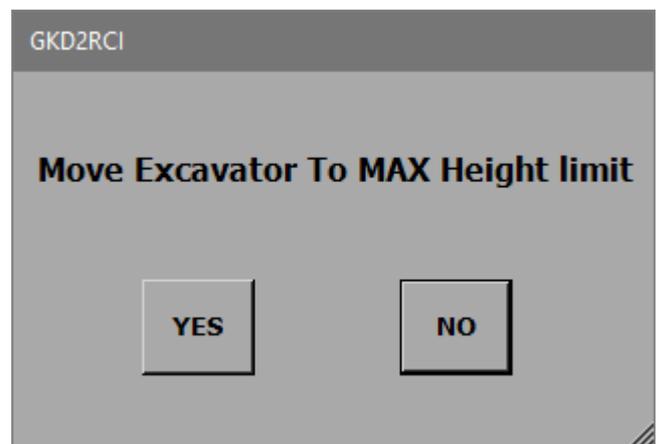


The system will ask if you want to enter the maximum height limit with the keyboard. Pressing “YES” will bring up a keyboard screen. Enter the height in metres and press OK. [Pressing exit without entering data will switch off the limit].



Pressing “NO” will allow the height to be set by moving the machine to the maximum height.

Press “YES” when the machine is in the correct position. NOTE this screen will timeout if not selected within 10 seconds.

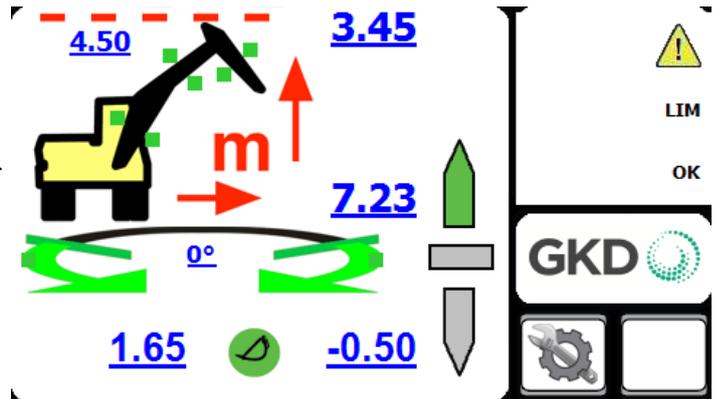


Height Limit continued...

When there is a height limit set, this will be shown on the main screen.

As you approach the height limit, the internal buzzer will beep and the amber LED will flash.

If the height is exceeded then the internal buzzer will sound and the boom lift will be cut (if an optional motion valve is fitted).

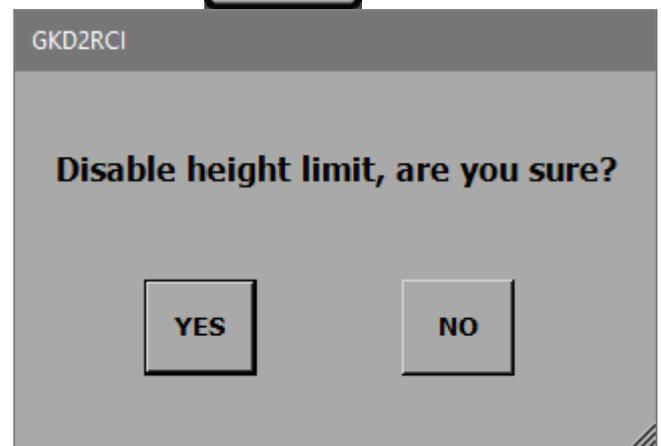


Cancelling a Height Limit

Access the Mode Menu and press on the “Height Limit” button.

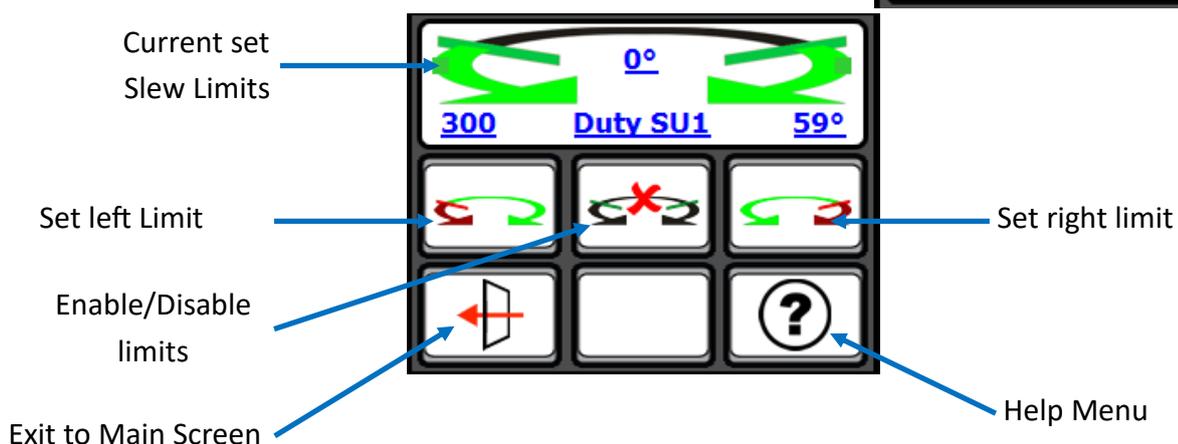
The 2 Series Height & Slew will prompt the operator to confirm that the height limit should be disabled, as shown here. Pressing “YES” will disable the height limit function.

Normal operation will be resumed but with no height limit active.



Setting a Slew Limit

From the Mode Menu, press on the “Set/Cancel Slew Limit” button.



To set slew limits, slew the machine left to required position and press the “Set Left Limit” button.

Then slew the machine right to the required position and press the “Set Right Limit” button. Return to the operator screen and check that the limits are working correctly by slewing the machine left and right until the limits are reached.

**Note: if the machine has got a Swing Boom, offset first before setting slew limits.
The swing boom movement is prevented when a slew limit is set.**

Virtual Walls

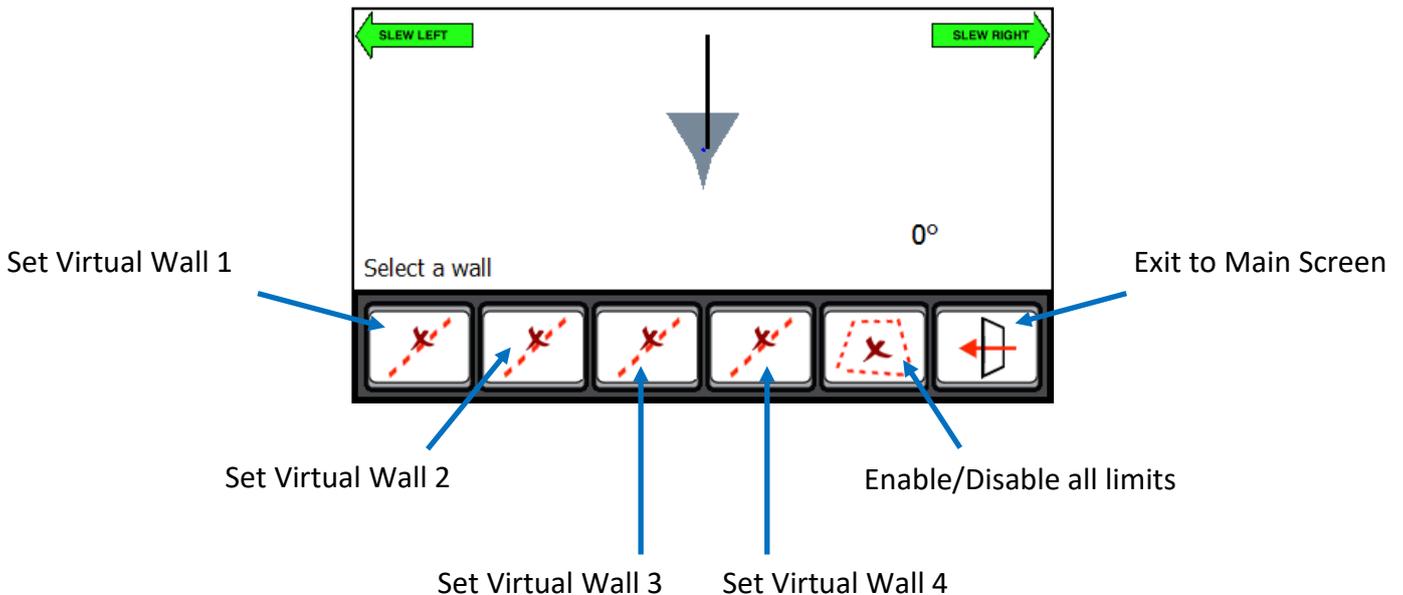
From the main screen, press on the Mode button:



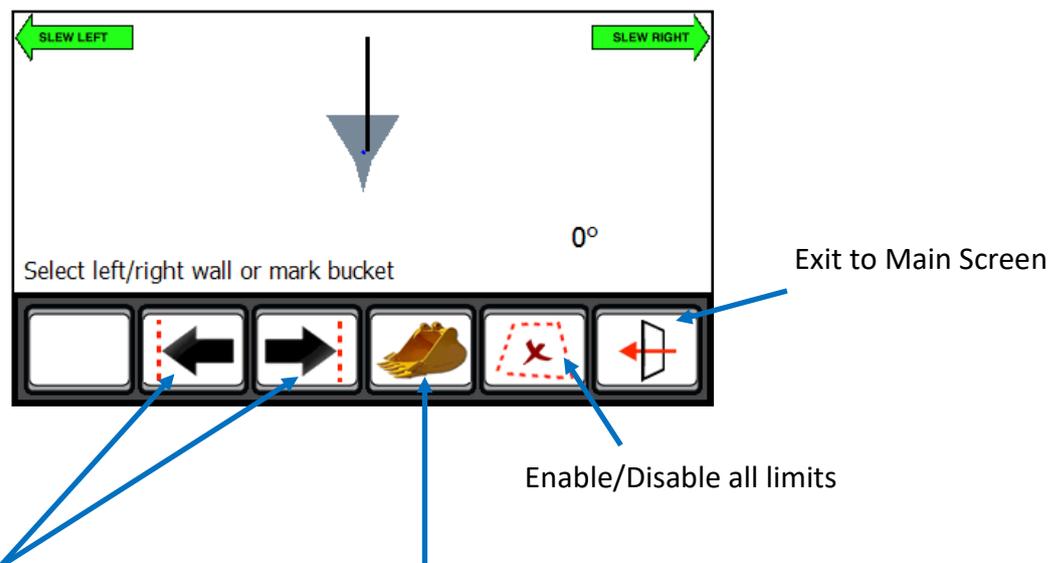
Then press on the Virtual Wall button:



You should be shown the screen below:



Pressing on any of the **“Set Virtual Wall”** buttons will display the following screen:



Set a left or right virtual wall which will be parallel with the tracks or wheels of the machine.

This is entered as a distance, in metres, from the centre of the machine.

Set a virtual wall by moving the bucket or tool to 2 different points near the machine. The system will then connect these points with a ‘virtual wall’ which will then become the limit.

Virtual Walls continued...

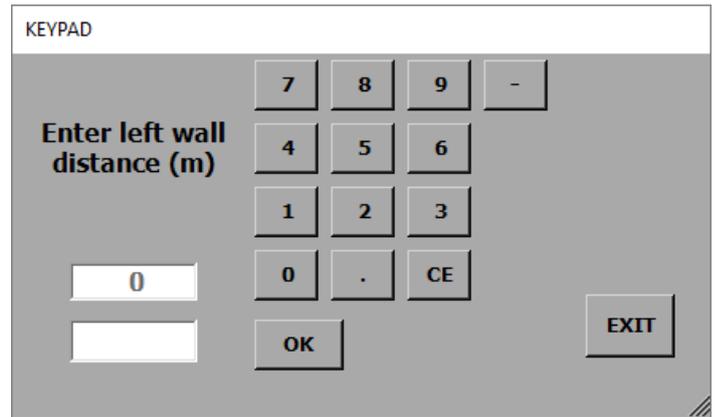
Setting a virtual wall by entering a distance

Press on the “Set Virtual Wall 1” button.

Then press on the “Left Wall” button.

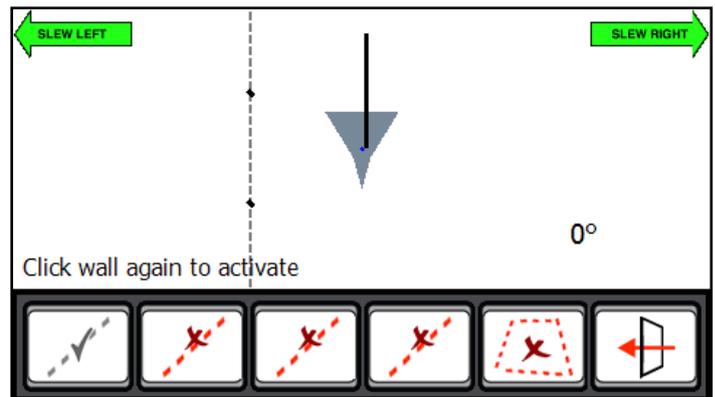
A keypad will open for you to enter the distance to the left wall, in metres.

Enter the distance and press ok.

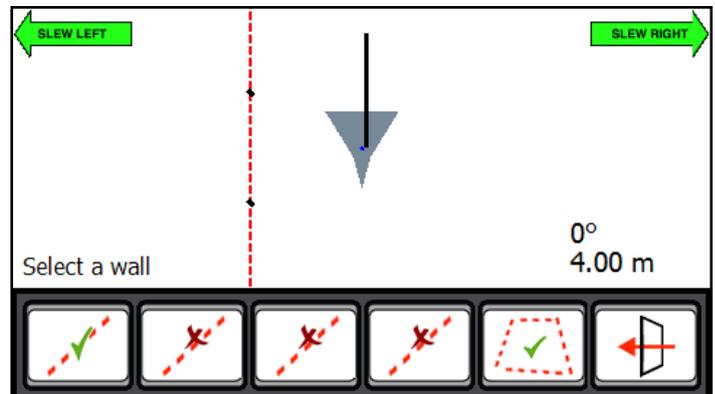


The screen should now change back to one similar to that pictured to the right.

The “Set Virtual Wall 1” button will now be greyed out. Pressing on this button will activate the virtual wall and the button will change to indicate that the virtual wall is not active.

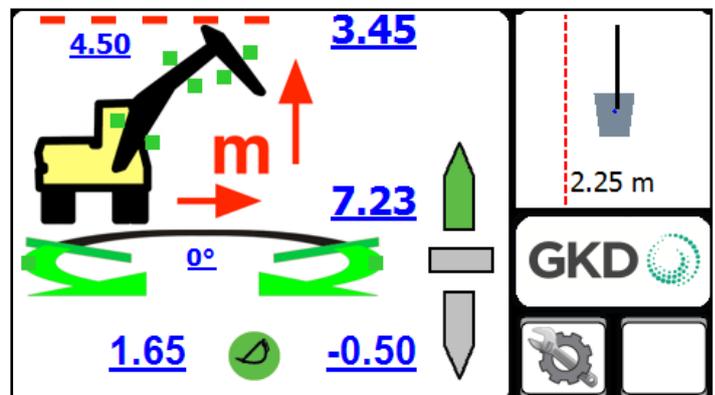


The screen pictured to the right, shows a virtual wall set and active.



The screen pictured to the right, shows the main operator screen once the virtual wall has been set and activated.

The top right corner of the display will show where the virtual wall is in relation to the machine. It will also show the distance to the virtual wall from the machine.



As the machine slews, its position and distance to the wall will be updated automatically.

When the machine reaches the virtual wall, all relevant machine motions will be prevented from breaching the wall. This includes Boom and Dipper motions.

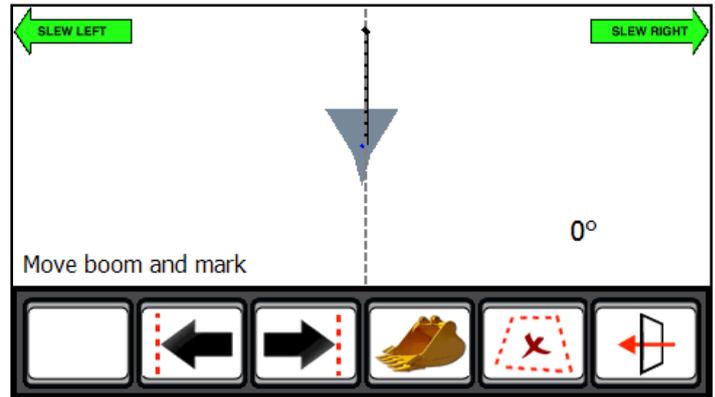
Virtual Walls continued...

Setting a virtual wall using the bucket

Move the machine and position the bucket where the first point of the wall is required.

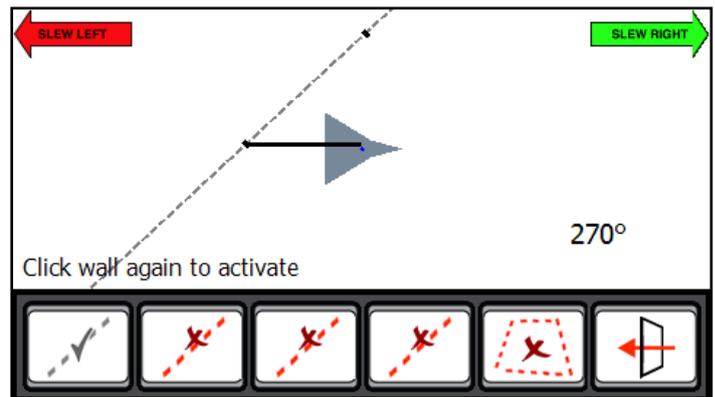
Press on the **"Bucket"** button.

The system will log this point as the first point of the virtual wall.



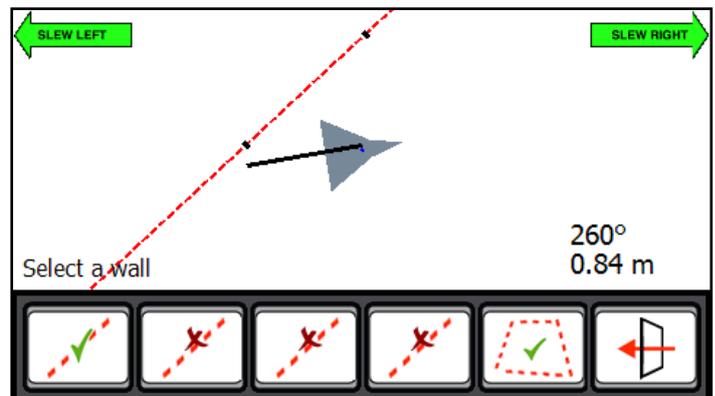
Slew the machine to move the bucket to the second position. As the machine moves, you will see the screen update and create a virtual wall between the first point and where the bucket is.

Once you have positioned the machine at the second point, press the **"Bucket"** button again. This will log the second point of the virtual wall.



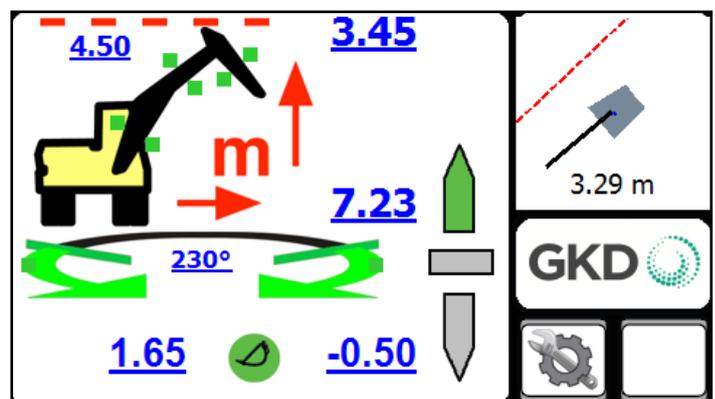
The **"Set Virtual Wall 1"** button will now be greyed out. Pressing on this button will activate the virtual wall and the button will change to indicate that the virtual wall is not active.

This method is the same for Virtual Walls 2,3 & 4.



The screen pictured to the right, shows the main operator screen once the virtual wall has been set and activated.

The top right corner of the display will show where the virtual wall is in relation to the machine. It will also show the distance to the virtual wall from the machine.



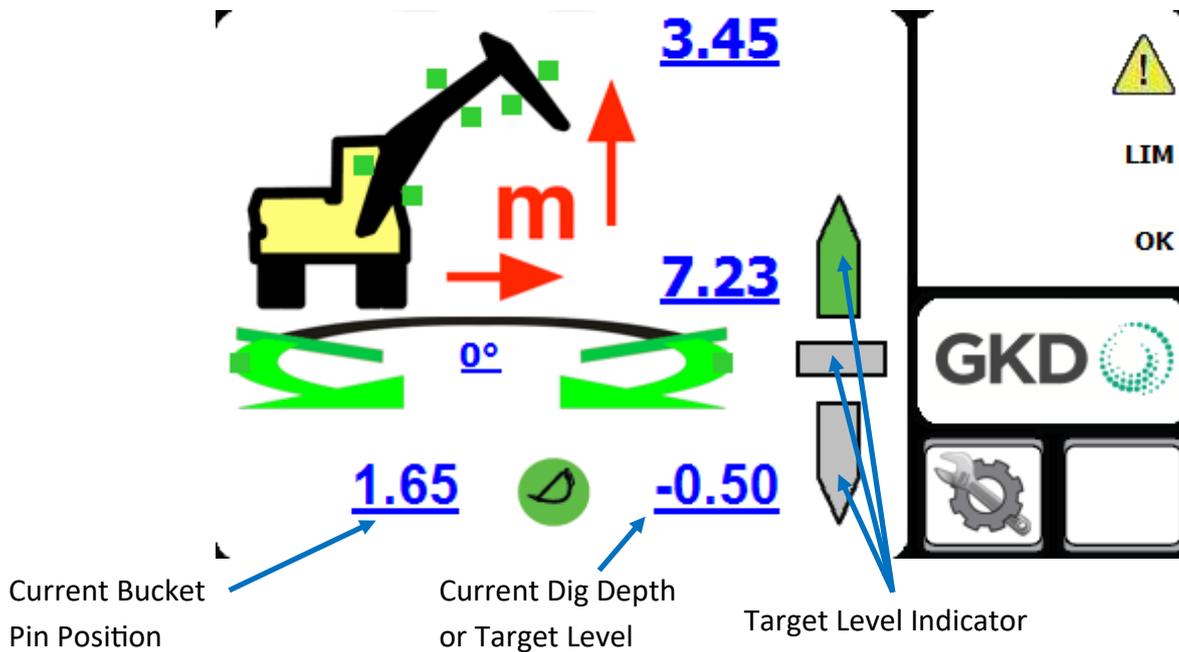
As the machine slews, its position and distance to the wall will be updated automatically.

When the machine reaches the virtual wall, all relevant machine motions will be prevented from breaching the wall. This includes Boom and Dipper motions.

Dig Depth Indicator

The 2 Series Height & Slew provides a guide to levelling or trenching.

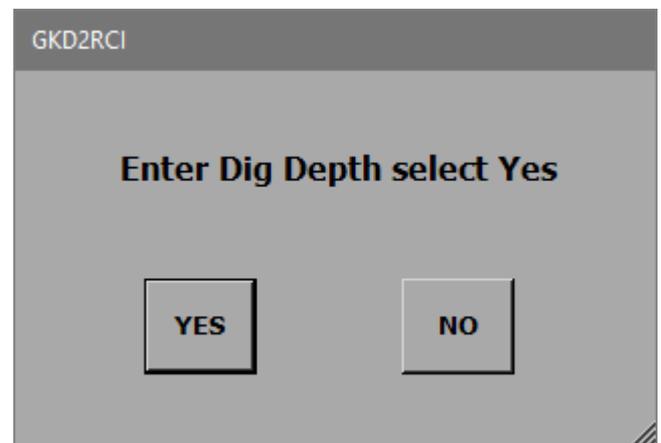
The system monitors the Bucket Pin at all times and, depending on its position, can indicate whether you are too deep or not deep enough.



Depth Setting

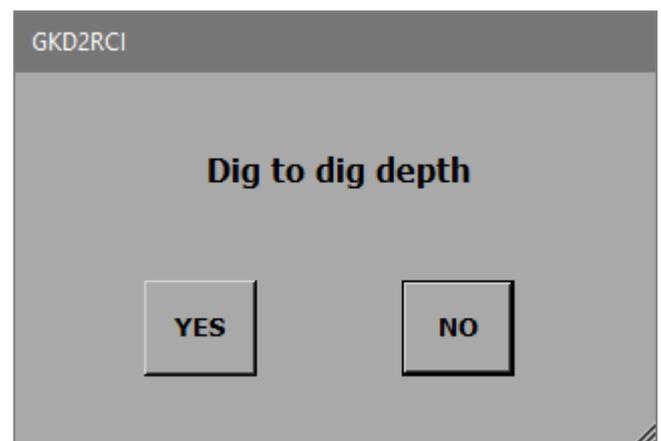
To adjust or set the dig depth, press on the  button which is in the Mode Menu.

The system will ask you if you want to enter a depth using the on screen keypad. Press **“YES”** to access the keypad. Enter a depth that is relative to the base point of the boom and press enter. Press exit from the keypad to deselect the dig mode.



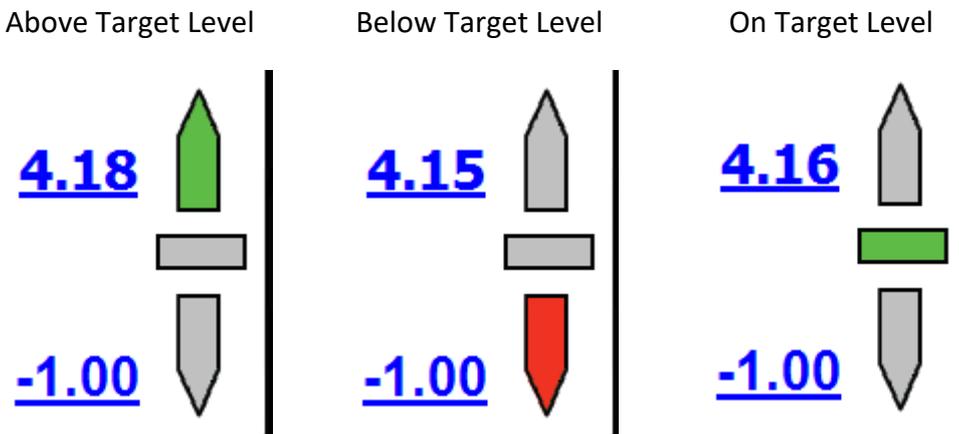
Pressing **“NO”** will allow the operator to use the position entry mode.

Place the bucket at the level required and press **“YES”**. The system will now use this position as the target depth.



Dig Depth Indicator continued...

When in digging mode the system provides a level indicator. The indicator shows the target level. There are three states for the indicator, as shown below:



NOTE - The depth indication is measured to the load point. The orientation of the bucket will affect the accuracy of the indicator. Moving the machine from one level to another will change the depth of a trench. Whenever the machine is moved it is recommended that the depth is reset by placing the bucket on the level previously dug and reset the depth by pressing dig mode, “NO” and “YES” to make the new bucket position to datum.

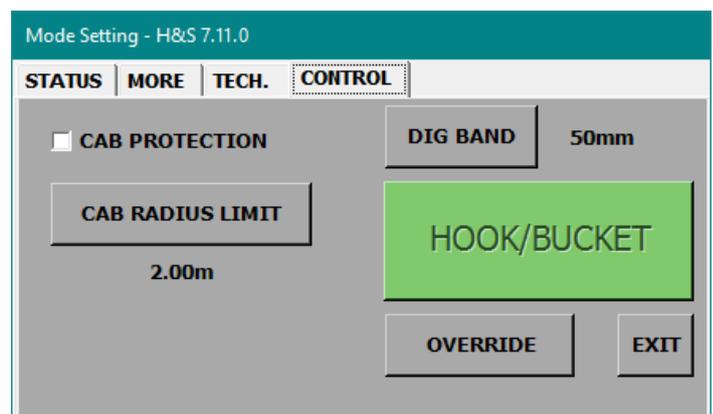
Cab Protection

From the Settings Menu, on the Control Tab, you can now set a Cab Protection Limit.

Pressing on the Cab Radius Limit button will allow you to enter a distance in meters, from the centre of the machine, forward.

Once you have entered the desired distance, press on **CAB PROTECTION**. You should see a tick appear in the small box to the left.

When the Bucket Pin of the machine reaches this radius distance, Stub Down (Fore Down if fitted) and Dipper In movements will be stopped to prevent the machine from reaching closer.



Note: if the Slew Module is fitted, make sure you turn the Set Limit Key Switch to the Set Limit position otherwise this option will be greyed out.

Test Function

Pressing the “**TEST**” button will activate the internal and external alarms and operate any motion cut valves that may be connected for a period of around five seconds. The test button sequence should be carried out regularly to verify the correct operation of warning devices.

To access the “**TEST**” button, first press the “**MENU**” button.



Then you can press on the “**TEST**” button.



Error codes and error diagnosis guide

The system diagnostics continually monitor all of the system components for correct operation. If there is a problem, the system will show an error message on the display in a red background and if appropriate sound the alarm. Below is a link to the GKD Knowledge base where you can find definitions of all the error codes for the 2 Series Height & Slew System.

helpdesk.gkdtechnik.com/kb

Alternatively, contact GKD Technologies on:

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+44 (0) 1202 971971

service@gkdtec.com

www.gkdtec.com

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