SERIES 2|TH

USER MANUAL

M2000020 V1.1 - 06/2021

GKD

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SERIES 2-TH INTRODUCTION

The Series 2-TH is a stand-alone PLC based Height Limiter intended for use on hydraulic Telehandlers and similar machines where there is 1 boom with an Extension and height limits are required.

Sensor Telehandler system monitors the front end equipment (Telescopic Boom) to allow the safe use of the machine while under obstacles. It processes the sensor inputs, controls output valves limiting the front end equipment of the machine. The height limits are set by the machine operator and are displayed on the in-cab display. The system will then warn when the machine is close to a limit and then prevent the limit from being exceeded.

This product is a safety product.

WARNING - THE HEIGHT RESTRICTION FUNCTION IS DESIGNED TO BE USED AT SLOW LIFT SPEEDS ONLY. USE AT SPEED MAY RESULT IN AN OVERSHOOT INTO A POTENTIALLY DANGEROUS POSITION.

WARNING - THE SLEW RESTRICTION FUNCTIONS ARE DESIGNED TO BE USED AT SLOW SLEW SPEEDS ONLY. USE AT SPEED MAY RESULT IN AN OVERSHOOT INTO A POTENTIALLY DANGEROUS POSITION.

NOTE: THE HEIGHT RESTRICTION IS MEASURED FROM THE HIGHEST POINT OF THE MACHINE WHICH IN MANY CASES WILL BE HIGHER THAN THE OPERATOR CAB.

IF THE ADDITIONAL SENSOR IF FITTED TO THE FORKS OF THE TELEHANDLER, THEN THIS ADDITIONAL HEIGHT WILL ALSO BE TAKEN INTO ACCOUNT

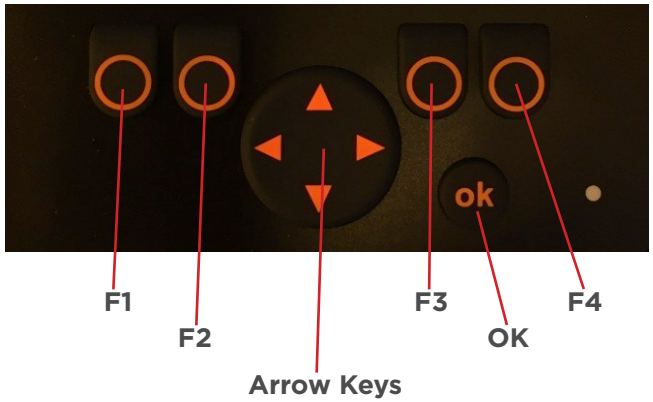
SYSTEM HARDWARE

The Series 2-TH system consists of the PLC module, PDM display and Input & Output devices. Both the PLC and the PDM display have running Real Time software and the application code loaded to the device.

- PLC module, Model: CR0403 IFM electronic
- PDM display, Model: CR0451 IFM electronic

Operation

When the system powers up, and displays the GKD logo, press the **OK** button to enter the operational mode.

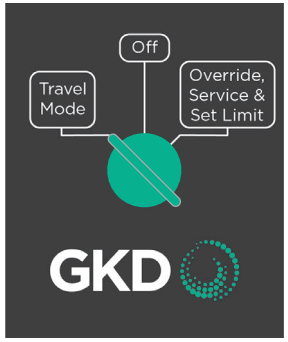


KEY SWITCH POSITIONS

Operational

Turn the key switch to the straight position.

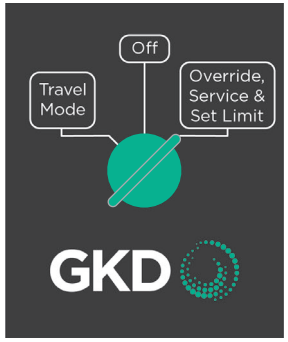
This puts the system into the Operational Mode. While in this mode, Height Limits are active.



Travel Mode

Turn the key switch to the left position to enable Travel Mode.

While in Travel Mode, Boom controls are locked, but travel is allowed (depending on optional Travel Inhibit valve).

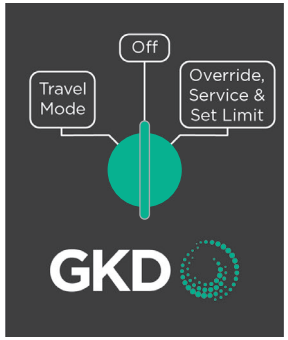


Service Menu or Calibration Mode

Turn the key switch to the right position to access Override, Set Limits and Service Area.

From this menu, Height limits can be set and/or adjusted. Also, the system can be overridden if required.

The Service Area is passcode protected.



SETTING A HEIGHT LIMIT BY CAPTURING THE MACHINE POSITION

Turn the Key Switch to the **Set Limits** position and select the **Set Limits** option.

Select **Height Limit**.

Raise and/or extend the boom to the required limit position and press **OK** button to set.

SETTING A HEIGHT LIMIT BY MANUALLY ENTERING THE HEIGHT

Turn the Key Switch to the **Set Limits** position and select the **Set Height** Limit option.

Press **F4** key button to delete the existing limit and Press **Manual** to enter the height limit, in meters. The Set limit value screen will appear as below. Use the arrow keys to enter the required height.

Confirm the required value in meters by pressing OK button.

Press Back button.

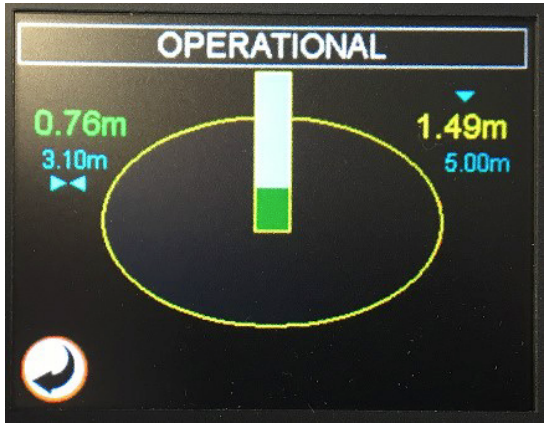
OPERATIONAL MODE

When Series 2-TH r is activated the following screen will appear.

The left hand side of the screen shows the Tele Extension length (in green) as well as the maximum extension length allowed (in blue).

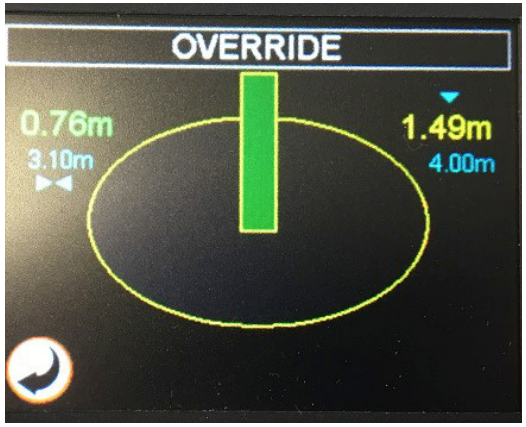
The right hand side of the screen shows the current highest point of the equipment (in yellow) and the current set height limit (in blue just under).

When on the limit position, the external audible sounder is switched on to warn the operator and the relevant valve cut off to disable any further upwards movement.



OVERRIDE

The slew and height limits in this mode are overridden, so the operator can rotate and lift the arm freely without any restriction. The external beacon will turn off to when overridden.

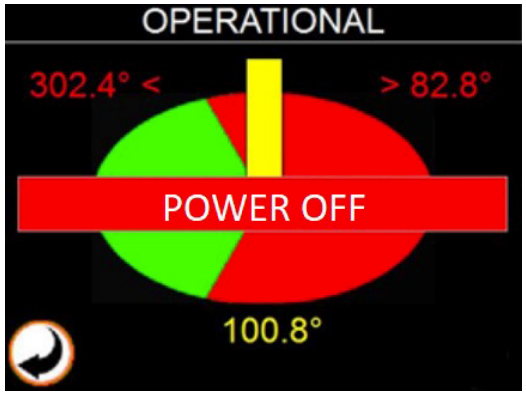


AT A LIMIT

When on the limit position, the external audible sounder is switched on to warn the operator and the relevant valve cut is switched off to disable any further movement in that direction. The only movement allowed will be away from the limit.

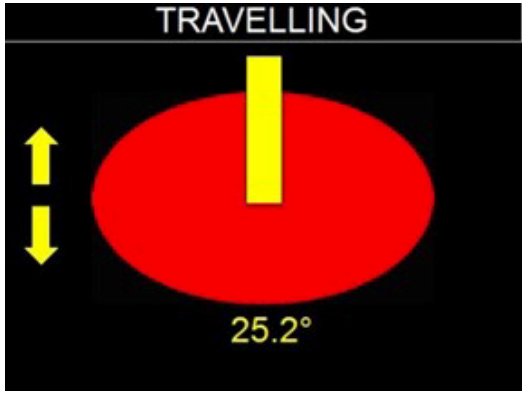
If the arm exceeds the pre-set distance from the limit towards to the restricted zone, the system activates

‘Dead man’ feature, i.e. the main relay supplying the hydraulic valve turns off. The warning message will appear on the screen. Rectify the error by switching to override mode.



TRAVEL ENABLE

When the Manual Set Limits setting is selected, the machine travel is enabled by turning the key switch to the travel enable mode. The slew valves are cut off to disable rotating the arm and both travel valves are enabled. The travelling screen will appear on the display.



WARNING MESSAGES

During the system configuration and the normal operation process the Sensor slew system calculates and evaluates all the conditions. In any abnormal condition a relevant warning message will appear on the screen.

Configure First

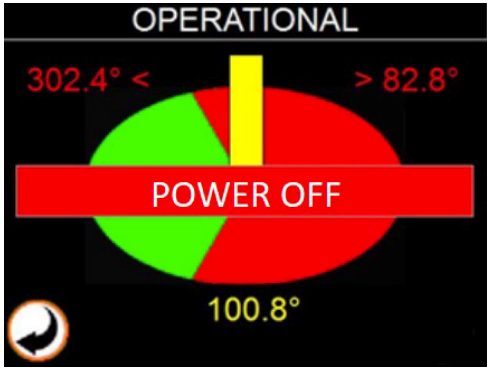
The system is not configured when delivered. It needs to be installed and configured on the machine.

Auto Configure First

When Set zero selected before the system has been configured. Start the system configuration with Auto configuration before Set zero.

Power Off

If the arm exceeds the pre-set distance from the limit towards to the restricted zone, the system activates ‘Dead man’ feature, i.e. the main relay supplying the hydraulic valve turns off. The warning message will appear on the screen. Rectify the error by switching to override mode.



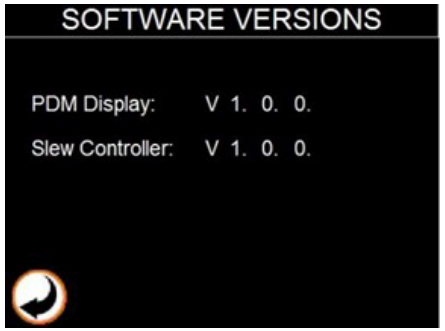
DISPLAY SETTINGS

From the Start up initial screen press the Display Settings push button.

The Display Setup screen will appear.

Software Versions

Select the Software Versions option by using the up and down arrows and the **OK** push button.



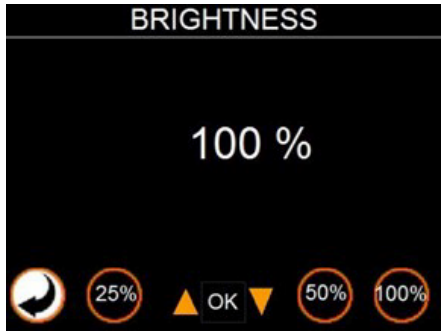
The correspondent screen will appear.

Brightness

Select the Brightness option by using the up and down arrows and the **OK** push button.

The correspondent screen will appear.

Set the display brightness by pressing the correspondent push button for pre-set values or by using the up and down arrows. Confirm the setting by pressing the **OK** push button.



GKD Technologies reserve the
right to change these instructions in
line with the policy of continuous improvement.

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