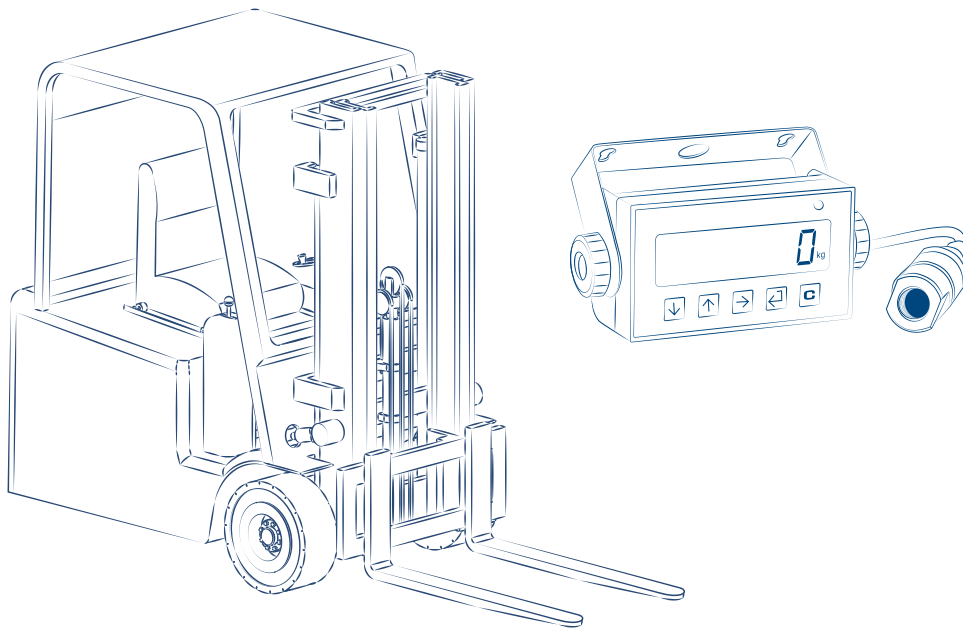


# LTP

## Forklift hydraulic weighing system

**CALIBRATION AND LINEARISATION PROCEDURE**

**ENGLISH**





# Introduction





This document contains calibration and linearisation instructions for LTP systems.  
Please follow the instructions contained in this document carefully.

The system is based on measuring the pressure in the hydraulic circuit of the electric pallet truck, which for this reason must be in excellent condition.

For further information, contact Dini Argeo s.r.l.

## Preliminary checks

It is recommended to check the correct installation and wiring of the sensor before starting the calibration procedure:

1. Turn on the weight indicator and press  during the power on countdown. The technical menu is opened on the indicator and "CAL" appears.
2. Press  twice. "d CAL" appears on the indicator. Press  to go back to diagnostics.
3. "CAL . 00" appears on the indicator. Press  to display the signal coming from the sensor.
4. When the forks are lifted (even without any weight on them), the displayed value will increase during lifting until it reaches a peak and then it will stabilises.  
Similarly, when the forks are lowered, the value drops to approximately the original value.

# Calibration

## WARM UP THE HYDRAULIC CIRCUIT OIL

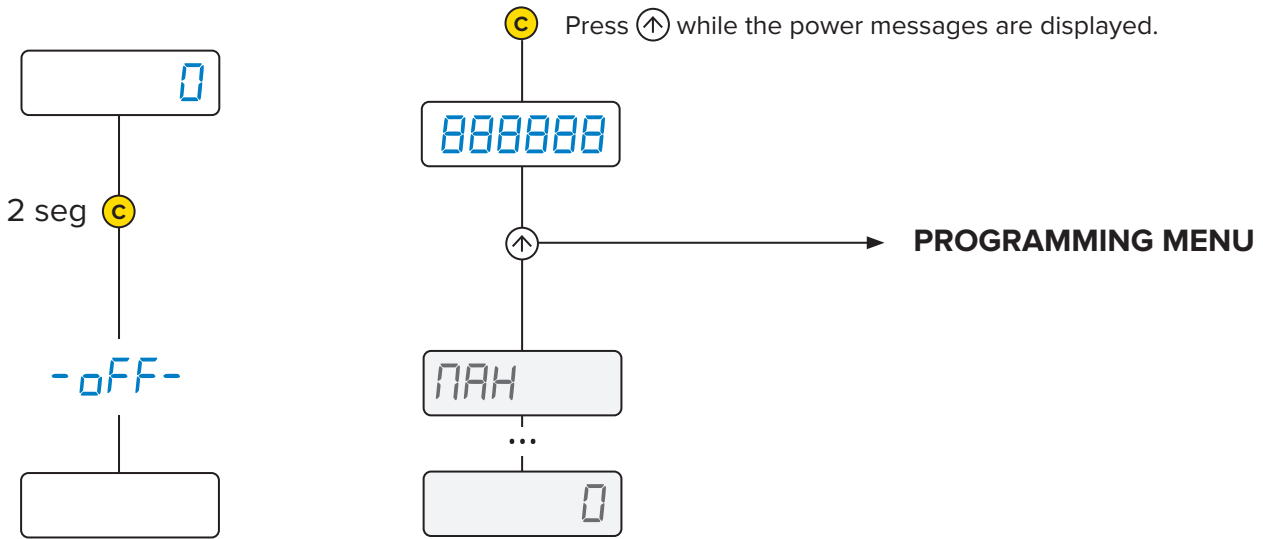
The hydraulic circuit oil must be warmed up by lifting the forks with no load a few times before starting the calibration procedure itself.

This will ensure that the oil temperature during calibration and during operation are almost the same.

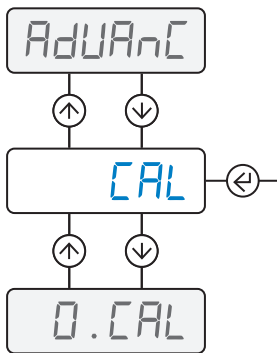
## GO TO THE PROGRAMMING MENU:

1. Turn off the indicator.

2. Switch on and follow the procedure:



## SELECT THE CAL PARAMETER.



Scroll the main menu with  $\uparrow$  and  $\downarrow$  and enter the `CAL` parameter by pressing  $\leftarrow$ .



### IMPORTANT

All steps of the calibration process (including lifting the unloaded forks) must be performed by placing a pallet on the forks to distribute the weight more evenly.

For the sake of simplicity, it will not be shown in following drawings.

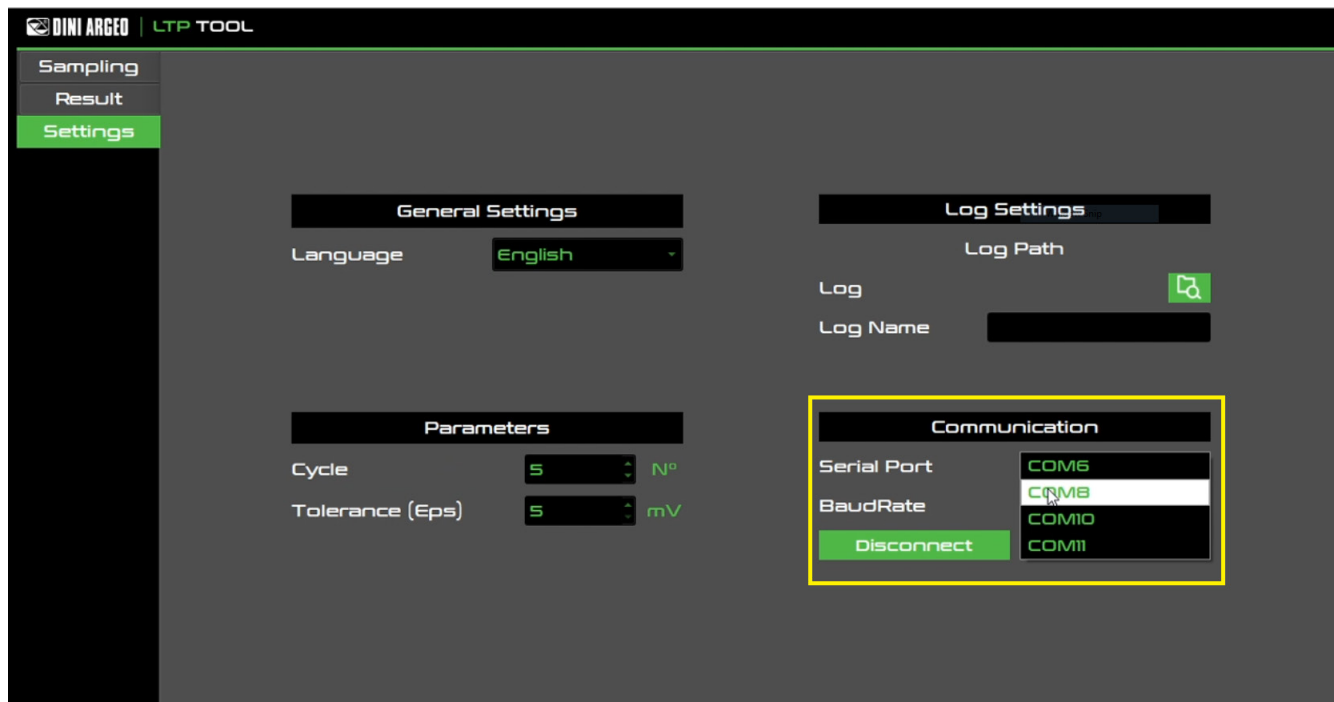
## CALCULATE TIMES WITH LTPTOOL

LTP TOOL is a free PC software useful to optimise the response speed and the accuracy of the weighing system according to the conditions and characteristics of the forklift.

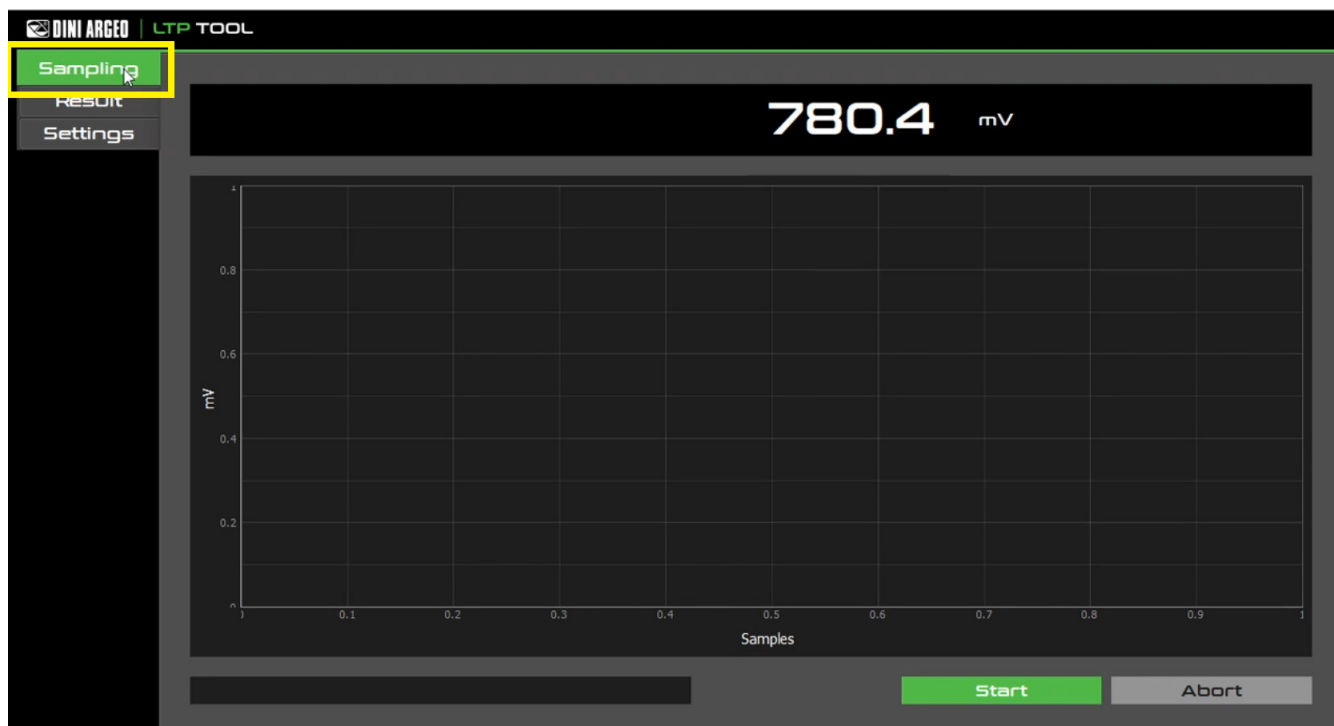
The weight indicator must be connected to the PC using the **RSCBUSLTP** cable for operation.

Using LTP TOOL is not mandatory.

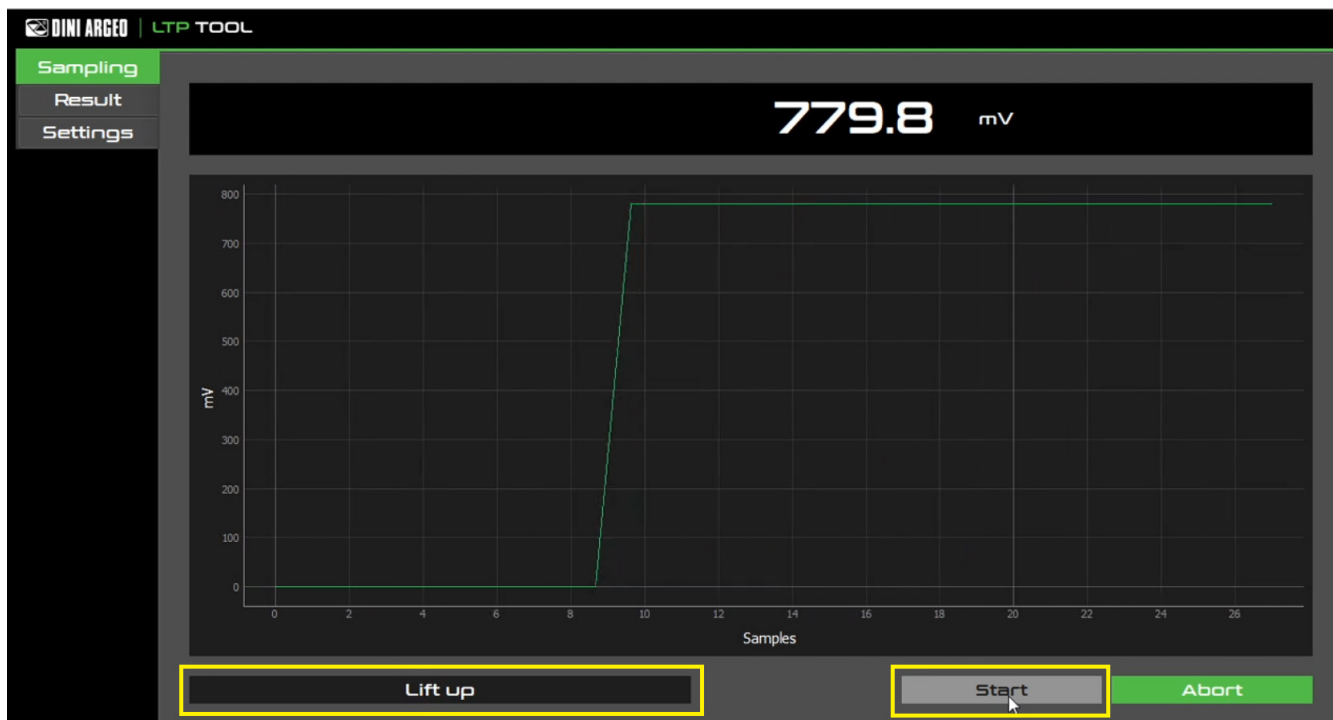
Select the “Settings” tab and select the serial port. Click on “Connect”.



Select the “Sampling” tab.



Click on “Start” and follow the instructions in the box in the bottom left. Use a weight equal to at least a quarter of the system capacity.



The times to be used during calibration are shown at the end of the acquisition.

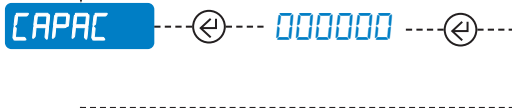


Start of the calibration procedure:



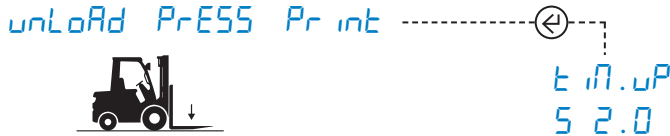
Set the resolution and press

How to set the value

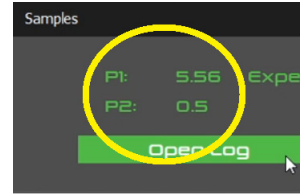


Set the forklift capacity and press

How to set the value



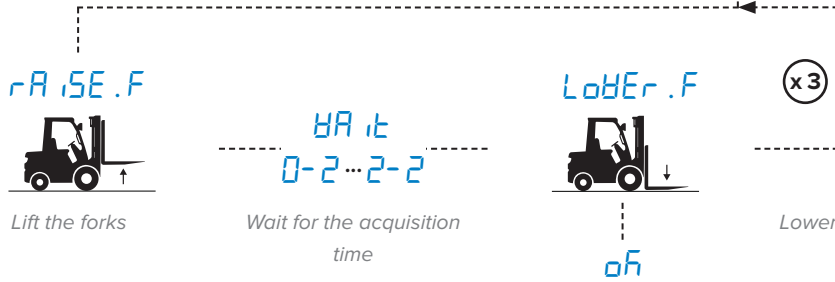
Place a pallet on the forks



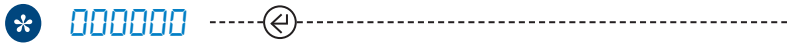
P1 = t n . u P  
P2 = t n . AUG

Enter the values calculated by LTP Tool and press

How to set the value

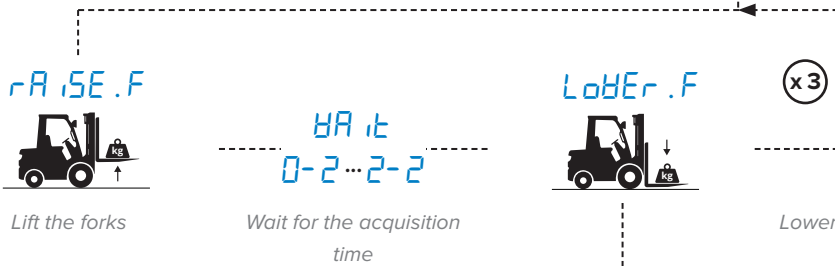


Repeat the lifting / lowering operations of the forks 3 times



\* Enter the calibration weight and press

How to set the value



Repeat the lifting / lowering operations of the forks 3 times

CALoH

StorE



\* The highest possible calibration weight must be used for the first calibration (ideal condition: sample weight = maximum capacity).  
It will not be possible to acquire a weight greater than the value entered during the first calibration during the next linearisation.

# Calibration linearisation

Perform the linearisation after calibration to increase weighing accuracy.

Linearising the calibration means adding calibration points (up to 6). The more calibration points that are added, the more accurate the system will be.



We recommend defining at least 2 linearisation points.

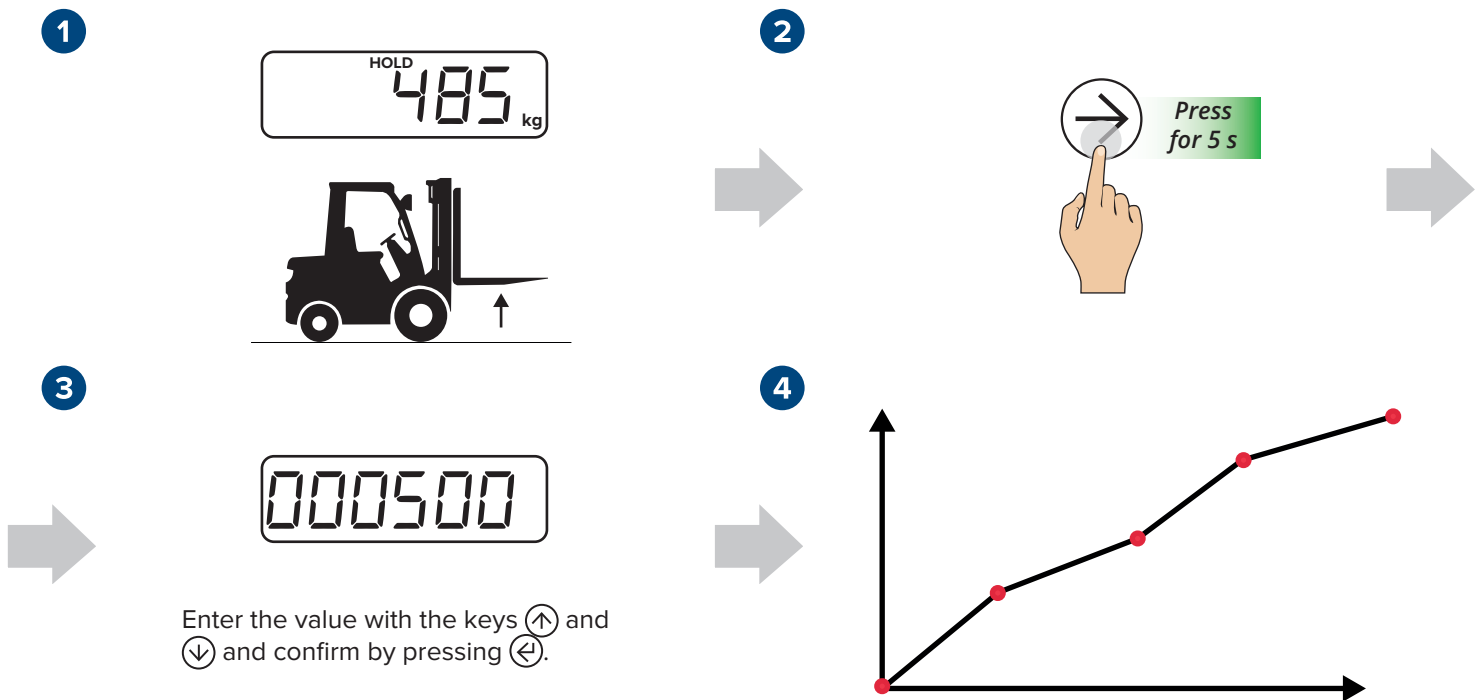
## Example:

On a system with a capacity of 2000 kg, assuming an initial calibration with 2000 kg, we recommend adding 3 calibration points at 500 kg, 1000 kg, 1500 kg.

An additional point will need to be added at approximately 250 kg if the system is found to be inaccurate below 500 kg after testing.

## HOW TO ADD A CALIBRATION POINT:

1. Lift the weight value you want to acquire (e.g. 500 kg) with the indicator in the weighing state. The indicator will show the weight and the “HOLD” warning light will appear.
2. Hold  pressed for 5 seconds, The message “*E . Error*” will appear briefly on the display.
3. Enter the weight value and press .
4. Repeat the operation for each calibration point to be added.



**i** After 6 linearisation points are reached, adding a new one will overwrite the point with weight value immediately higher than the acquired weight.

It is not possible to add a linearisation point with a weight value higher than the acquired point during the initial calibration (*H . Error* error).







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Stamp of the authorised service centre

