

# Installation & Calibration Manual



## ED3 SkidWeigh Plus Series

Lift Truck On-board Check Weighing System with  
Mobile Zebra Label Printer QLn420

**Mobile Label Printer**

*(Bluetooth interface with ED3 SkidWeigh Plus)*

**Forklift cradle**

**Optional Mounting  
Arm**

*ED3-Zebra V1.25*



## General Installation Guide

This **ED3-Zebra SkidWeigh Plus V1.25** Series installation & calibration guide describes how to install, calibrate, test and use your on-board check weighing unit. Following the instructions in the **ADMINISTRATION MENU** guide will enable you to get the system time set up and weighing calibration function operating quickly. In the event that you require additional assistance, please contact customer support via e-mail at [support@skidweigh.com](mailto:support@skidweigh.com) , visit [www.skidweigh.com](http://www.skidweigh.com) or contact us at the address or contact number below:

### **Integrated Visual Data Technology Inc.**

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## Safety

Always disconnect the vehicle battery while installing SkidWeigh system or any other electronic product.

Make sure that unit, pressure transducer and any other associated cables are securely mounted and do not impede any of the vehicle's controls. Use care when routing the components cables. Route the cables where they will be protected.

Use commonly accepted install practices for after market industrial vehicle electronic devices.

The installation of the SkidWeigh systems should only be performed by an acknowledged lift truck dealer technician or end user electro and hydraulic technical installer.

Here are two acceptable methods of making a wire connections:

- \* Soldering your connections (recommended)
- \* Crimp connectors ( with the use of the proper crimping tool)

Regardless of the method you choose, ensure that the connection is mechanically sound and properly insulated. Use high quality electrical tape and shrink tubing where necessary. This product is connected directly to the vehicle's ignition switch, 12 to 55 VDC. There is no on-off switch on the unit.

## Electro-Magnetic Compatibility

CE conformity to EC directive 89/336 (EMC) by application of harmonized standards: Interference stability EN 61000-6-2 and EN 61326-1 interference emit EN 61000-6-3, EN 61326-1 for the pressure transducer.

## ED3-Zebra SkidWeigh Plus Series

Our policy is one of continuous improvement and the information in this document is subject to change without notice. The software version is displayed on the LCD display once the power is turned on to the system.

## Overview of components

The standard **ED3-Zebra SkidWeigh** Plus check weighing system consist of two main components:

- \* Digital indicator, wiring harness, mounting bracket **Option:** (Zebra mobile printer QLn420 with mounting accessories)
- \* Hydraulic pressure transducer with 3 wires cable
- \* Installation & calibration manual and operator usage instruction

## Operational principal

The **ED3-Zebra SkidWeigh Plus** series operational principal is based on the hydraulic pressure transducer mounted in the vehicle lifting hydraulic circuit that will automatically activate the “weighing cycle / specific algorithm ” every time a skid load is lifted just above the ground. The increase in pressure is converted in an electronic signal at the sample rate of 16000 readings which is converted into a load weight reading.

## Pressure transducer installation

The pressure transducer must be installed in the lifting hydraulic line **between the lift control valve and lift cylinder(s)**. Mount a T-piece in hydraulic line. In some cases you can install the pressure transducer in the flow divider,



drilling and tapping for 1/4"-18 NPT male in spare plug (if only single or double mast configuration) or in the body of the flow divider. Also, you can drill and tap on any “larger elbow” that might be available in the hydraulic lifting circuit found in vehicles with larger hoses to accommodate larger vehicle lifting capacities.

## Pressure transducer installation precautions

Before installation of the pressure transducer the hydraulic lift circuit must be pressure free.

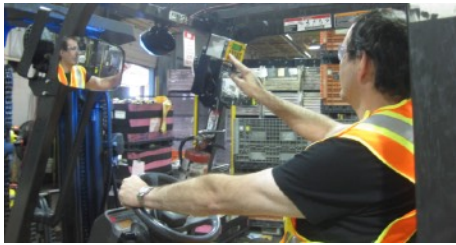
### There are two ways to do that:

1. Place the forks on the ground in their lowest position and make the hydraulic system pressure free by tilting the mast forward. The chain(s) should be slack.
2. Lift the forks and position them on the top of a supporting fixture. Start lowering the lifting cylinder into its lowest position. Be sure that chain(s) are slack.

Make sure that that installed pressure transducer will not touch any moving parts or assembly of the vehicle while in normal operation. Pressure transducer has 1/4"-18 NPT male thread. Use thread seal to ensure tight fit.

## Selecting the mounting location for digital indicator

Use the mounting bracket with the anti vibration mount and fasten digital indicator on the vehicle dashboard, side railing on the right hand side or preferably on the overhead guard. There are many examples of mounting locations that will depend on the vehicle model. However, additional mounting items such as a flat brackets may be needed to help secure the unit to upper right corner of the guard or side railing.



- Choose the correct location and make sure that:
- Indicator is visible and within reach of the operator
  - Location so that operator has a clear unobstructed view of the working environment

## Compact size

All of the SkidWeigh systems are compact, housing dimension of only 120 x 80 x 55 mm is ideal for the installations to material handling vehicles of all kinds.



## Electrical connections

All SkidWeigh RFID equipped systems operate from 12 to 55 VDC.

*Digital indicator with eight wires single cable*

- **Orange Wire (+) Ignition switch On position**
- **Brown Wire (-) Battery negative**
- **Red Wire, connect to RED wire of the pressure transducer cable**
- **Black Wire, connect to BLACK wire of the pressure transducer cable**
- **White Wire, connect to WHITE wire of the pressure transducer cable**

## Vehicle Disable Function (Optional)

**Internal relay SPDT dry contacts 1 A.**

**This relay will be activated and stay on once the valid operator ID# is inputted into the system.**

To disable vehicle operation (connect two wires in series with seat switch, starting solenoid, etc.) either NO or NC contacts. (In the majority of cases use BLUE and Green wires, N O contacts.

- **Green Wire Common**
- **Yellow Wire N.C.**
- **Blue Wire N.O.**

## Pressure transducer cable



- **White Wire, pressure transducer signal 0 to 2,5 V**
- **Black Wire, signal negative**
- **Red Wire, power supply + 11 VDC**

Male port 1/4"-18 NPT



Keypad

SCROLL KEYS

Bluetooth Icon

Indicates connection status with Zebra Printer

Print and save to USB port

“Enter key” ↵

**F 9 Administrative**

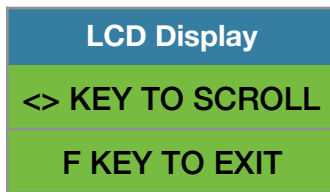
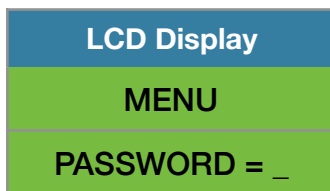
All SkidWeigh systems are **internally short circuit protected with resettable fuse**. There is no need to install external inline fuse in orange wire that is connected to the ignition switch.



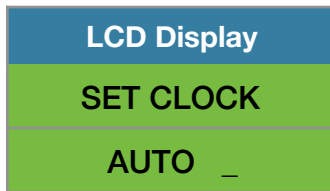
## Administration Menu Instructions

With LCD display showing time /date to enter into the **Administration Menu** press **F** and number **9**.

If the LCD display is showing “**ENTER ID NUMBER**”. Input default ID# of **111** or any other valid ID number. The LCD display will show date/time. Press **F** and then number **9** and input password         . Use left and right arrow keys to scroll and follow the LCD instructions.



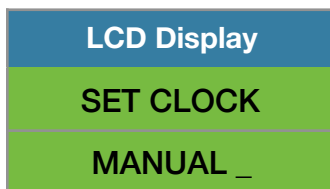
### Date / Time Set Up



Use left ◀ and right ▶ arrow key (*bottom left side of the keypad*) to change from AUTO to MANUAL date/time set up.

**Note:** *AUTO set up refers to system utilizing a wireless RF platform with automatic date /time update from IVDT Base Station communication and programming hub.*

**For the applications without Base Station, select MANUAL \_ set clock and follow the LCD instructions.**



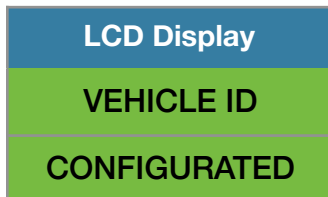
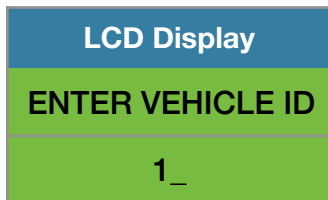
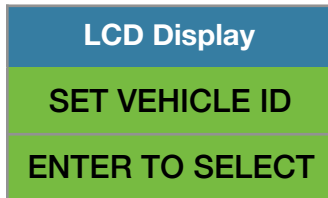
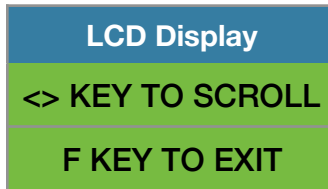


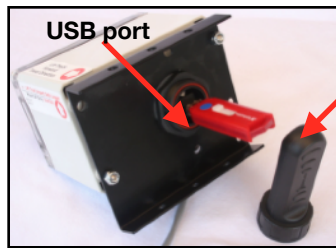
Press **“Enter key”** ↵ to confirm the setting. The cursor will automatically move to the next item to be changed ( Month, Day, Year, Hours, Minutes, Seconds). On the last correction, seconds item press **“Enter key”** ↵ to confirm new date / time set up.

## Set vehicle ID

- Maximum input number for vehicle ID# is 3 digits.

**Note:** For system used with RFID card reader maximum input number for vehicle ID is 5 digits.



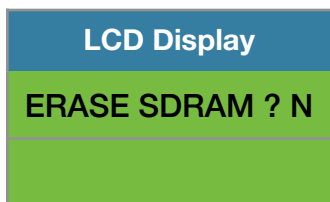
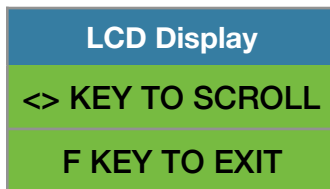


USB Port Protective Cover

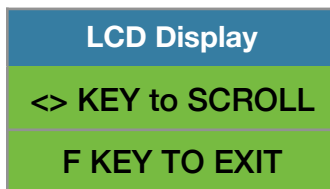
### Saving data to USB memory stick (Optional)

- Insert memory stick into USB port
- With LCD display showing date /time press **F** and then number **9** and input password \_\_\_\_\_.

Follow instructions shown on the LCD display



When the system has finished uploading the data to the USB memory stick the LCD display will prompt you to erase the SDRAM , all files contained on the ED3 SkidWeigh Plus system . Once you have made your selection **Y** or **N** the system will automatically bring you back to the main screen in the supervisor menu.







## Weighing scale function calibration

The **ED3-Zebra SkidWeigh Plus** calibration is automatic and is done by lifting empty and loaded forks (or any other attachment such as paper clamp) **just above the ground**. MAKE SURE THAT YOU HAVE A KNOWN LOAD WEIGHT AND KEEP IT NEARBY TO COMPLETE THE CALIBRATION.

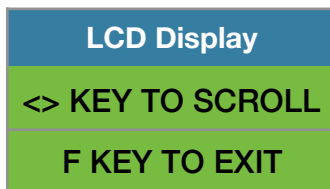
For the best results use at least minimum calibration load test weight of 30 to 50% of maximum lifting capacity of the lift truck. Use customer floor scale or find a known skid load weight within the operational facility.

### **Important:**

**If you want the system to show load weight in pounds, use the known load weight in pounds and enter that value accordingly. The same would apply if you want the system to show load weight in kilograms. Use the known load weight in kilograms and enter that value into the system accordingly.**

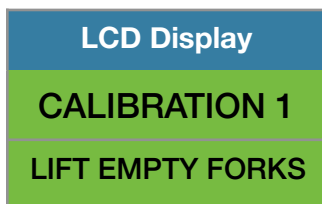
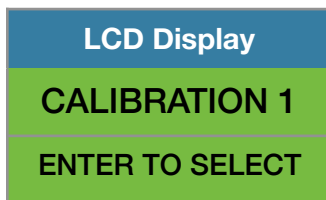
### Calibration starting point

With LCD display showing date /time, Press **F** and then number **9** key, password \_\_\_\_\_ and scroll to “**Calibration1**” shown on LCD display and press “**Enter key**” ↵.



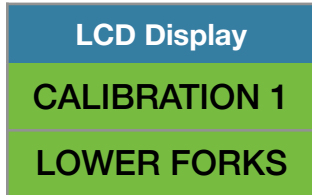
Lower the empty forks to the ground. There should be no hydraulic pressure in lift hydraulic circuit.

### **Follow instructions shown on the LCD display**

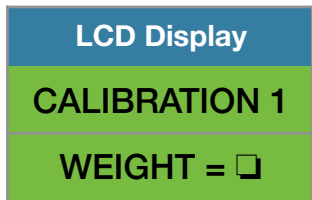


You must activate lift control valve and lift the empty forks just above the ground the same way that you would normally do when lifting loads. Do not slow down this lifting operational cycle, do not tilt the load, do not lift to different heights or move vehicle. **Lift empty forks just above the ground.**

After few seconds the LCD display will show

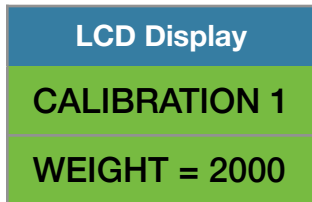


At this point you must lower the empty forks to the ground. The LCD display prompt you to input known calibration load weight.



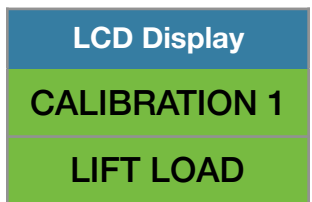
Pick up a known load weigh and **lower the loaded forks to the ground.**

*(Our example of the known load weight is 2000 kg)*

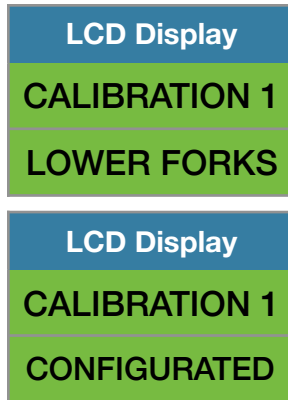


Input into the system the known load weight of 2000 into the LCD display and press **“Enter key”** ↵.

The LCD display will show



**Lift loaded forks just above the ground.** After few seconds the calibrated load weight value of 2000 will be stored in the system memory. The LCD display will prompt you to lower **“LOWER FORKS”**.



As soon the loaded forks are lowered to the ground LCD will show data / time. **System is ready to be used!**



**Calibration of the ED3-Zebra system weighing function is finished.**

## Onboard Mobile Label Printer (Bluetooth)



**Note:**

For user guide consult QL420 software & documentation CD supplied with every Zebra Printer kit.

- User Guide, Mobile Printer P1028026-004 Rev.A
- User Guide, Vehicle Cradle P1052234-001 Rev.A

### General

The QL420-VC forklift cradle allows use of the Zebra QL420 printer in a vehicle. The vehicle cradle receives power from a **DC power adapter** (Zebra Part No. AK18913-003) with an output of 12 VDC. The DC power adapter plugs into the cradle and the input is an unterminated two wires cable which connects to the forklift power from 12 to 60 VDC.

- WHITE Wire + Ign.switch or On /OFF switch
- BLACK Wire - Battery negative

**Note:** The printer runs off its own battery which is monitored and charged by circuitry within the printer

1. Mechanically prepare and install QL420-VC vehicle cradle
2. If you are installing the optional mounting arm remember the arm provides a considerable range of movement for cradle and printer.
3. Connect the power input cable of the DC power adapter from the vehicle's electrical system.
4. Consult Zebra QL420-VC vehicle cradle guide, **P1052234-001 Rev.A** for details

### Vehicle Cradle



### Vehicle Power Supply 12 to 60 VDC

