INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business

Installation & Calibration Manual

SkidWeigh Plus ED3 Series

Lift Truck On-board Check Weighing Systems

Version: ED3 V 1.15

Version:ED3- V1.15

INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business

General Installation Guide

This **ED3 SkidWeigh Plus, V1.15** Series installation & calibration guide describes how to install, calibrate, test and use your on-board check weighing unit. Following the instructions in this guide will enable you to get your system operating quickly and easily. In the event that you require additional assistance, please contact customer support via e-mail at support@skidweigh.com , visit www.skidweigh.com or contact us at the address or contact number below:

Integrated Visual Data Technology Inc.
3439 Whilabout Terrace, Oakville, ON, Canada, L6L 0A7
Phone: 905-469-0985

Safety

Always disconnect the vehicle battery while installing SkidWeigh system or any other electronic product.
Make sure that indicator, 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 power supply, 12 to 55 V DC. 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 SkidWeigh Plus Series

Our policy is one of continuous improvement and the information in this document is subject to change without notice. Check that software version displayed on LCD is the one applicable for your application.

Overview of components

The standard ED3 SkidWeigh Plus check weighing system consist of two main components:
* Digital indicator with RS232 interface, wiring harness, mounting bracket and anti-vibration mount
* Hydraulic pressure transducer with 3 wires cable
* Installation & calibration manual and operator usage instruction

INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business

Operational principal

The ED3 SkidWeigh Plus operational principal is based on the hydraulic pressure transducer mounted in the vehicle lifting hydraulic circuit that will automatically activate the “weighing cycle 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 per measurement session 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.

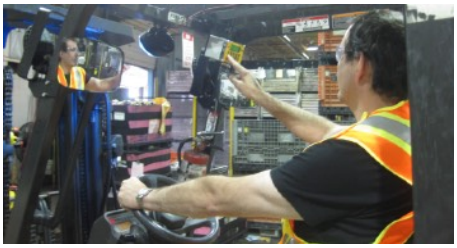
Make sure that that installed pressure transducer will not touch any moving parts or assembly of the vehicle while in normal operation. Pressure transducer has 1/4”-18 NPT male thread. Use thread seal to ensure tight fit.

Selecting the mounting location for digital indicator

Use the mounting bracket with the anti vibration mount and fasten digital indicator on the vehicle dashboard or side railing preferably on the right hand side. 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 does not hit a head

INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business



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 systems operate from 12 to 55 V DC.

Digital indicator five 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

Pressure transducer cable

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

Power short circuit protection

All SkidWeigh systems are internally short circuit protected with resettable fuse. There is no need to install external inline fuse in orange wire connected to the ignition switch.
Note: *Any external devices connected to the SkidWeigh system, such as non standard onboard printer might require external fuse.*

INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business

"Quick test to determine if electrical connections are done right"

Note: *SkidWeigh weighing calibration function is not done yet at this stage. This procedure is only to test if electrical connections of the system installation into the vehicle is done properly!*

After you have connected electrical power and pressure transducer cable you can "quickly" check the system operation.

- Lower the forks to the ground
- Turn On ignition switch
- Digital LCD display will be activated, showing software version and serial number
- Digital LCD display will show current date and time

LCD Display
Aug 28, 2010
12:20:23

If the loaded forks are lifted above the ground LCD digital display will show **"PLEASE WAIT"** and within few seconds display will show "some" load weight . *(Example: 455, not calibrated load weight at this stage)*

LCD Display
PLEASE WEIGHT
WEIGHT = 455

If the above test is valid than the system electrical connections are done right. The next procedure will be to calibrate the SkidWeigh weighing function.

Lift truck equipped with hydraulic accumulators

If the standard SkidWeigh system is installed on the lift trucks equipped with hydraulic accumulators, please contact us to provide you with different digital indicator having specific software algorithm to obtain load weight accuracy within +/- 1% of vehicle maximum lifting capacity.

INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business

Date / Time Set Up

In the event that date and time is not right you can correct when you press **F** key and hold it for the moment until LCD display shows **ENTER FUNCTION**

Press number **3** and display will be in date / time change mode.

LCD Display
AUG 28, 2010
12:20:23

Use left ◀ and right ▶ arrow key ***(bottom left side of the keypad)*** to change the value. Press **"Enter key"** ↵ **(bottom right side keypad arrow**) 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.

Weighing calibration

The **ED3 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

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

- Turn ignition switch to on position (electric lift trucks) and start the engine on combustion powered lift trucks
- LCD display will show software version and serial number for the moment and date and time will be displayed

INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business

Calibration

To initiate system calibration and LCD display must be showing date / time.
Empty forks must be lowered to the ground. To initiate automatic calibration, press and hold "**F" key** until LCD display shows **ENTER FUNCTION.**
Press number **0** and the LCD display will show

LCD Display
CALIBRATION 1
LIFT EMPTY FORKS

Lift empty forks just above the ground.
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

LCD Display
CALIBRATION 1
LOWER FORKS

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

LCD Display
CALIBRATION 1
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)

LCD Display
CALIBRATION 1
WEIGHT = 2000

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

The LCD display will show

LCD Display
CALIBRATION 1
LIFT LOAD

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

LCD Display
CALIBRATION 1
LOWER FORKS

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

LCD Display
AUG 28, 2010
12:25:23

System with overload warning function *(Additional step)*

As soon the loaded forks are lowered to the ground the LCD will prompt you to input the overload value for your vehicle application. **"OVERLOAD = -"**. Input the overload value and press **"Enter key" ↵.**

Calibration of the ED3 system weighing function is finished.

INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business

Quick Operator Reference / Usage Guide

Weighing Mode

Insert the forks into the pallet or under the product to be weighed.
Lower the forks to the ground.

LCD display must show date and time in order to initiate weighing function.

LCD Display
Aug 11, 2011
11:19:38

Activate lift control valve and lift loaded forks just above the ground.

LCD Display
Aug 11, 2011
PLEASE WAIT

LCD will display "**PLEASE WAIT"** and after few seconds a load weight will be shown

Example: Lifted load weight of 1200

Note 1: This load weight will be shown on LCD display until next time the forks are lowered to ground.
Note 2: When vehicle in motion the LCD might show some random load weight. This is due to the hydraulic spikes and this does not represents any actual load weight value. To initiate the **"weighing cycle" you must lower the loaded forks to the ground and lift loaded forks just above the ground.**

"Enter key" ↵

Function key

Scroll keys

INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business

Accumulative Load Weight Total

To add loads weight press **"Enter key"** ↵ after each load weight is shown on LCD display.

LCD Display
CALIBRATION 1
WEIGHT = 1200

When **"Enter key"** ↵ is pressed LCD display will show a load weight of the first load and total load weight.

LCD Display
WEIGHT#1 = 1200
TOTAL = 1200

After each new load weight shown on LCD display and pressing **"Enter key"** ↵ system will be updated showing the latest current load weight, number of loads and total load weight of all loads.

To RESET current individual load load weight or totalizing session press **"P" key** and session will be RESET.

Note: If the onboard printer (RS232 interface) is connected to the system by pressing "P" key after individual or total load weight you will get a printout ticket.

TARE Function Input

To set up TARE value into the system press **"F" key** and input number number **8**.

Input TARE value and press **"Enter key"** ↵

LCD Display
TARE ADJUSTMENT
TR = _

All of the following load weight will be displayed with TARE sign shown on LCD display.

Important: To reset TARE you must press **"F" key** , input number **0** and press **"Enter key"** ↵.