Installation & Calibration Manual

ED3/ED4-EP-LTL-WD CubeFreight

(ED3/ED4-EP-BS-LTL-WD CubeFreight system with Bluetooth module for connection of the barcode scanner)
(ED3/ED4-EP-PB-LTL-WD CubeFreight system with external push button to initiate measurement cycle)

Electric Pallet Truck Onboard

Freight Dimensioning & Check Weighing Initiated by Barcode Scanner
General Installation Guide

This CubeFreight ED3/ED4-EP V1.33 Series guide describes how to install, calibrate, test and use your material handling vehicle onboard dimensioning & check weighing system. Following the instructions in the ADMINISTRATIVE MENU guide will enable you to get the weighing scale calibrated and the system up and running. 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 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 power 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.

CubeFreight ED3/ED4-EP 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 (Bluetooth scanner is optional equipment)

The standard CubeFreight ED3/ED4-EP system consist of two main components:
* CubeFreight indicator, wiring harness, mounting bracket and anti-vibration mount
* Hydraulic pressure transducer with 3 wires cable
* Installation & calibration manual and operator usage instruction
Operation

The Cube Freight EP operation is based on the hydraulic pressure transducer mounted in the vehicle lifting circuit.

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 lifting hydraulic line.

Pressure transducer installation precautions

Before installation of the pressure transducer the hydraulic lift circuit must be pressure free.
Pressure transducer has 1/4"-18 NPT male thread. Use thread seal to ensure tight fit.

Selecting the mounting location for digital indicator

Note: Use the mounting bracket with the anti vibration mount and fasten digital indicator on the vehicle dashboard. 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 digital indicator.

Electrical connections

All Cube Freight systems operate from 12 to 55 VDC.
- Orange Wire (+) Vehicle power on switch
- 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
LIFT MOTOR TRAVEL CONTROL INTERFACE FOR ELECTRIC PALLET TRUCKS

Examples of electrical connection of two black wires interface to vehicle lift motor control travel during the load weight measurement cycle

PUMP SOLENOID Coil Contacts
Splice two black wires from digital indicator in series with pump solenoid coil terminal.
(Two black wires are internally connected dry contact, normally closed contacts that will open during the load weight measurement cycle only. Lift motor will be stopped. After load weight is displayed on digital indicator contacts will close and vehicle lift motor function will be resumed)

Example: Splice two black wires in series of the TS11 solenoid coil wires W029 or W239E
Lift Motor Solenoid Control

Use two black wires and splice them in series with one of the lift motor solenoid coil terminal wire or signal wire to the input controller that activates lift motor solenoid. Consult vehicle wiring diagram or contact the OEM for the proper interface of two black wires to control circuit of the lift motor solenoid terminal.

(See example of typical interface connection of two black wires connected in series to control lift motor control)

Verification of the electrical connections done properly

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

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<tr>
<th>LCD Display</th>
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<td>Aug 28, 2010</td>
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<td>12:20:23</td>
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If the above test is valid than the system electrical connections are done right.

**Note:** To test load weight function press bypass switch twice (Green switch) and lift the load.
Administrative Menu

F 9 ADMINISTRATIVE MENU (Password protected)

F 0 OPERATOR MENU (Bluetooth scanner pairing, TARE input, kg or pounds display)
The administration menu allows the installation technician to calibrate system weighing function (Set Calibration 1), set the overload if applicable and for the end user to manage data, set vehicle ID#, input proper time and date, modify utilization factor, impacts set up menu and saving data to memory stick.

Note: Data collected will depend on the hardware / software configuration.

To enter into the Administration Menu, press F key and than press 9 key. Input password 521. Use left and right arrow keys to scroll for functions that might apply for your system configuration.

Follow the LCD instructions, use “Enter key” ↵ to confirm set up input and use F key to exit.
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, use SET CLOCK MANUAL instructions.

To set clock / date. Follow the LCD instructions and press “Enter key” to confirm.
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.
**Saving recorded data to USB memory stick**

The CubeFreight system will allow you to download all recorded data onto a USB drive. **Follow instructions shown on the LCD display**

This function is located in **Administrative Menu**.

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 CubeFreight.

Make selection **Y** or **N** and press “**Enter key**” + to confirm selection and the system will automatically bring you back to the main screen in the administrative menu.
**Weighing scale function calibration**

Make sure that forks are on the ground and LCD display is showing time and date.

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To enter into the **Administration Menu**, press F key and than press 9 key. Input password **521**.

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<th>LCD Display</th>
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<td>MENU</td>
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<td>Password = ____</td>
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Use left and right arrow keys to scroll for CALIBRATION 1 functions to calibrate weighing scale function.

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<tr>
<td>CALIBRATION 1</td>
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<tr>
<td>LIFT EMPTY FORKS</td>
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**Activate and hold lift control switch** until empty forks are stopped automatically. After few seconds system zero weight value will be calibrated and stored. LCD will show “Lower Forks”.

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<tr>
<td>LOWER FORKS</td>
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**Lower the empty forks to the ground.** The LCD display will prompt you to input known calibration load weight. (In our example the known load weight is 2000)

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<td>CALIBRATION 1</td>
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<td>WEIGHT _</td>
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<tr>
<td>CALIBRATION 1</td>
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<tr>
<td>WEIGHT = 2000</td>
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Pick up a known load weight and lower the loaded forks to the ground. Input into the system the known load weight (Our example is 2000) and press “Enter key”. The LCD display will show 

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<td>LIFT LOAD</td>
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Activate and hold lift control switch until loaded forks are stopped automatically. After few seconds calibrated load weight value of 2000 will stored. Within few seconds the LCD will show “Lower Forks”.

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As soon the loaded forks are lowered to the ground the LCD display will show date / time.

System check weighing function calibration is completed.
System is ready to be used.

**Overload Warning Function** *(Optional Function)*

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As soon forks are lowered the LCD display will show

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<tr>
<td>CALIBRATION 1</td>
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<tr>
<td>OVERLOAD = _</td>
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The LCD display will prompt you to input the overload load weight value. Input the applicable overload value and press “Enter key”. Press F key to exit the ADMINISTRATIVE MENU.
Lift Truck Operator Guide

Automatic Measurement Cycle Initiated by Barcode Scanner

1. Lower loaded forks to ground

2. Use barcode scanner to scan Waybill ID# and initiate automatic measurement cycle.  
   **Note:** If barcode scanner not operational, press operator function switch once to input valid waybill ID#. After input of the last waybill ID number press “Enter key” to continue .

3. Default pallet size will be shown on LCD display. Press “Enter key” to confirm or use scroll key to use manual input for large loads or scroll for different pallet size shown in the menu. Press “Enter key” .

4. The LCD message will indicate to input “Pallet Height”. Input pallet height and “Enter key” .
5. The LCD message will indicate to lift the load. **Activate and hold lift control switch** until loaded forks are stopped automatically. Within few seconds the load weight will be shown on LCD display. **Automatic measurement cycle is completed.**

6. The measurement data will be saved to USB port and send to the base station when applicable.

**Bypass Switch Functions**

A. Faulty barcode scanner, damaged barcode or manual input required for Waybill ID#.
   **Press bypass switch once.**
   Input first Waybill ID number and “**Enter key**” ↵. Make sure that you press “**Enter key**” ↵ after each additional waybill number entered into the system. With last waybill number press “**Enter key**” ↵ again to advance to the pallet size menu.

B. When operation needs load weight information only.
   **Press bypass switch twice.**
   Lower the loaded forks to ground. **Activate and hold lift control switch** until loaded forks are stopped automatically. LCD display will indicated lifted load weight and information will be automatically send to USB port and base station.

**Multiple Loads**

**Customer has more than the single pallet load having same dimensions and load weight.**
In stead to measure multiple loads of the same characteristics you can input into the system number of the loads and initiate only one measurement cycle.

**Solution:**

With LCD displaying Date / Time press “**Enter key**” ↵. The LCD display message will prompt operator to input number of skids. Press “**Enter key**” ↵ to confirm number of skids and continue with measurement cycle. When measurement cycle is completed information will be automatically send to USB port and the base station that will also include number of skids and total load weight.

**F 0 OPERATOR MENU** (Application for Bluetooth scanner pairing, TARE input, kg or pounds display)
Automatic Measurement Cycle
Initiated by Pressing Bypass Switch

1. Lower loaded forks to ground

2. **Press bypass switch once to initiate measurement cycle.**
   Input first Waybill ID number and “Enter key” ↵. Make sure that you press “Enter key” ↵ after each additional waybill number entered into the system. With last waybill number press “Enter key” ↵ again to advance to the pallet size menu.

3. Default pallet size will be shown on LCD display. Press “Enter key” ↵ to confirm or use scroll key to use manual input or scroll for different pallet size shown in the menu. Press “Enter key” ↵ .

4. The LCD message will indicate to input “Pallet Height”. Input pallet height and “Enter key” ↵ .
5. The LCD message will indicate to lift the load. **Activate and hold lift control switch** until loaded forks are stopped automatically. Within few seconds the load weight will be shown. **Automatic measurement cycle is completed.**

6. The measurement data will be saved to USB port and send to the base station.

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**Bypass Switch Functions**

A. **Press bypass switch once** to initiate measurement cycle and input Waybill ID#s.

B. When operation needs load weight information only. **Press bypass switch twice.**
   Lower the loaded forks to ground, **activate and hold lift control switch** until loaded forks are stopped automatically. LCD display will indicated lifted load weight and information will be automatically send to USB port and base station.

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**Multiple Loads**

**Customer has more than the single pallet load having same dimensions and load weight.**

In stead t o measure multiple loads of the same characteristics you can input into the system number of the loads and initiate only one measurement cycle. **Solution:** With LCD displaying Date / Time press **“Enter key”** .

The LCD display message will prompt operator to input number of skids. Press **“Enter key”** to confirm number of skids and continue with measurement cycle.

When measurement cycle is completed information will be automatically send to USB port, onboard mobile printer and the base station that will also include number of skids and total load weight.

**F 0 OPERATOR MENU** (Application for Bluetooth printer pairing, TARE input, kg or pounds display)