

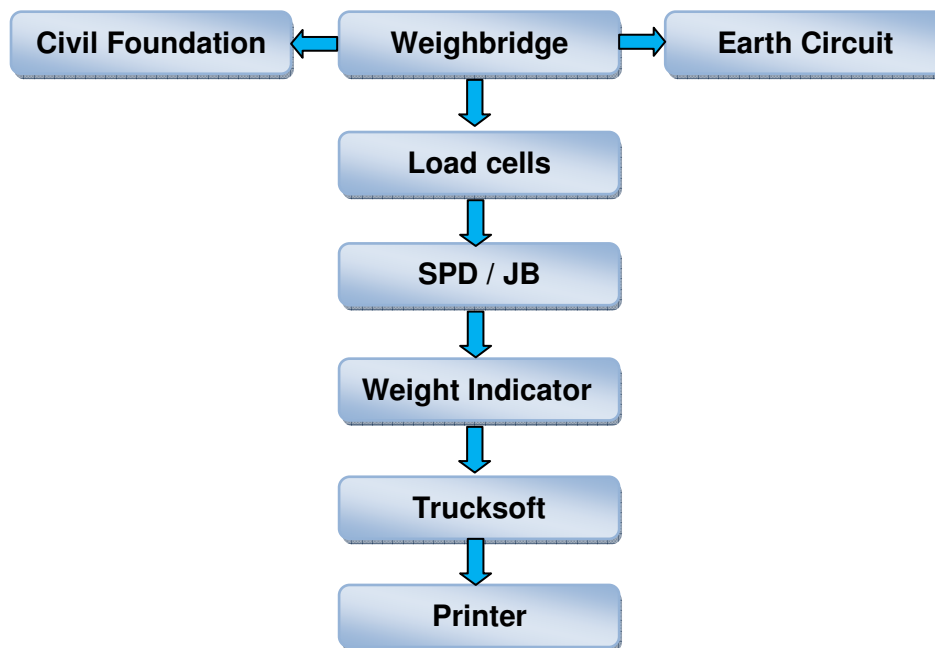
1.1 Introduction

Thank you for choosing this dedicated Truck Weighing & Automation Software (Trucksoft Pro) the complete software solution for managing your vehicle weighing requirements. Trucksoft provides detailed vehicle weighment data that you can view on your computer. This manual will help you to get started.

Requirement of site conditions for optimum accuracy

- Corner adjustment can be done if required
- Weighbridge must have good earthing
- Surge Protection Devices can be used
- Junction Box can be used

1.2 System Components



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1.2.1 Load Cells

A load cell is an electronic device (transducer) that is used to convert a force into an electrical signal. This conversion is indirect and happens in two stages. Through a mechanical arrangement, the force being sensed deforms a strain gauge. The strain gauge converts the deformation (strain) to electrical signals. A sensor usually consists of four strain gauges in a Wheatstone bridge configuration. The electrical signal output is typically in the order of a few mill volts and requires amplification by an instrumentation amplifier before it can be used. The output of the transducer is plugged into an algorithm to calculate the force applied to the transducer.

Sensor cable color coding

Excitation (+) : Red

Excitation (-) : Black

Signal (+) : Green

Signal (-) : White

1.2.2 Earthing

In electricity supply systems, an earthing (grounding) system defines the electrical potential of the conductors relative to that of the Earth's conductive surface. The choice of earthing system has implications for the safety and electromagnetic compatibility of the power supply. Note that regulations for earthing systems vary considerably between different countries.

A protective earth (PE) connection ensures that all exposed conductive surfaces are at the same electrical potential as the surface of the Earth, to avoid the risk of electrical shock if a person touches a device in which an insulation fault has occurred. It ensures that in the case of an insulation fault (a "short circuit"), a very high current flows, which will trigger an over current protection device (fuse, circuit breaker) that disconnects the power supply.

A functional earth connection serves a purpose other than providing protection against electrical shock. In contrast to a protective earth connection, a functional earth connection may carry a current during the normal operation of a device. Functional earth connections may be required by devices such as surge suppression and electromagnetic-compatibility filters, some types of antennas and various measurement instruments. Generally the protective earth is also used as a functional earth, though this requires care in some situations.

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1.2.3 Civil Foundation

A foundation transmits loads from buildings and other structures to the earth.

Consideration of civil foundations for Weighing Systems

- Load characteristics of the structure
- Properties of the soils and/or bedrock at the site
- Estimation of the magnitude and location of the loads to be supported
- To develop an investigation plan to explore the subsurface
- Determine necessary soil parameters through field and lab testing (e.g., consolidation test, tri-axial shear test, vane shear test, standard penetration test)
- Design the foundation in the safest and most economical manner.

1.2.4 Junction box

An electrical junction box is a container for electrical junctions, usually intended to conceal them from sight and to some extent to eliminate tampering. It can be a small metal or plastic container, such as those intended to form part of wiring, it may form part of an electrical conduit wiring system, or may be buried in the plaster of a wall, concealed behind an access panel or cast into concrete with only the lid showing. It may or may not include terminals etc. for joining wires.

1.2.5 Weight Indicator

The indicator that is used in weighbridge any analog or digital indicator, the minimum features of indicator is given below

- A/D conversion speed minimum 200 samples per second
- 8/16/24 bit A/D with ± 1 to 8 million counts for tension and compression applications
- Ethernet communications, Ideal for PC based applications

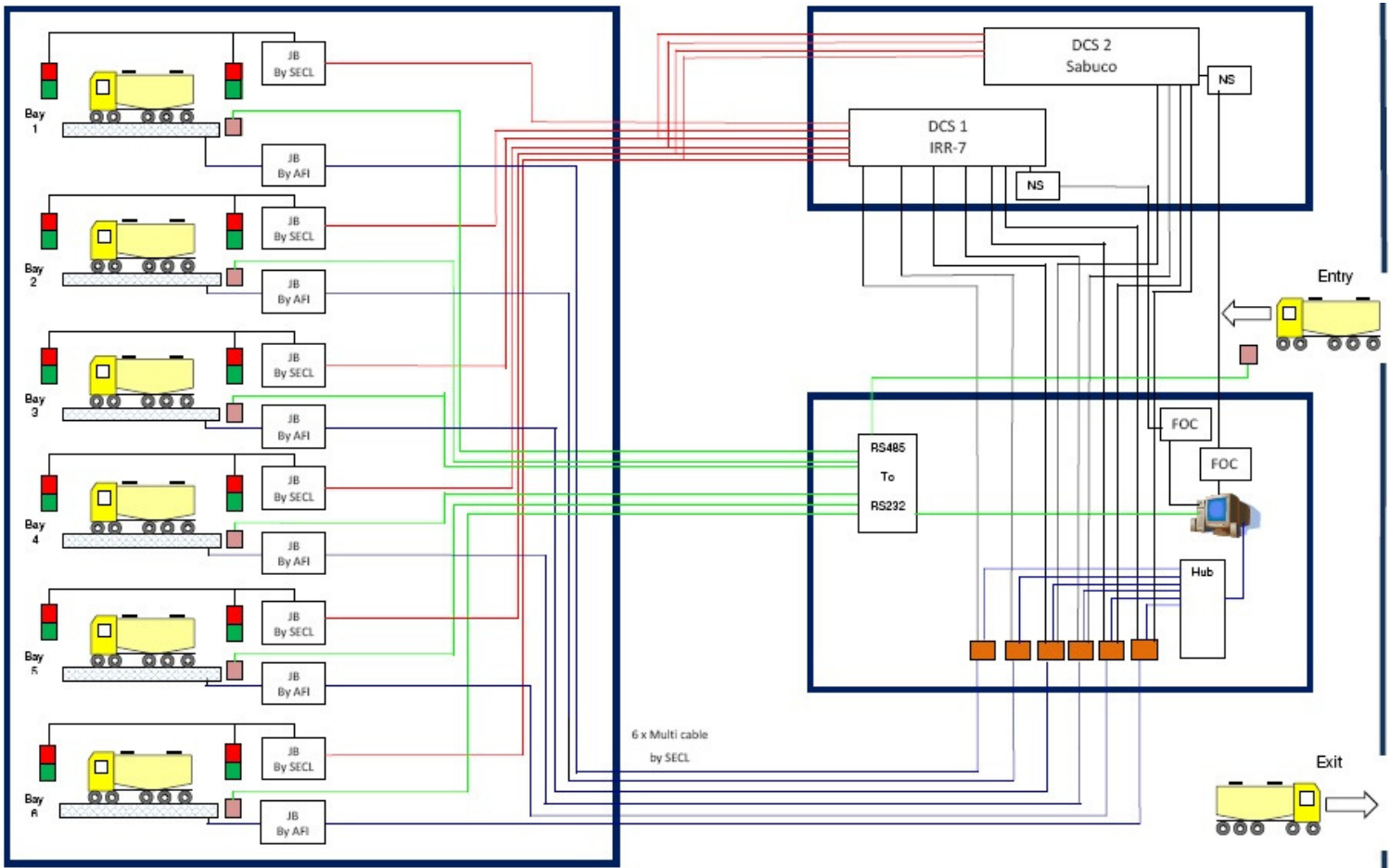
1.3 System Resolution




The system resolution can be set as 1024x768 for best view of the Trucksoft application in PC. This can be set through the desktop resolution settings from the control panel.

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1.4 System Integration Procedure

The system integration procedure is described in the below schematic diagram.



<p>Legend:</p> <p> : Traffic Lights</p> <p> : Weight Indicator</p> <p> : Card Reader</p>	<ol style="list-style-type: none"> 1. All LED Signal lights will be connected to DCS. 2. All Weight indicators will be connected to PC through Ethernet port 1. 3. All Weight indicators are connected to DCS via 4-20mA 4. All Card Readers, 7 Nos. will be connected to PC through RS485-RS232 5. PC will be sending Channel wise data to DCS through Ethernet-OFC-Ethernet (OFC – Optical Fiber Cable Transmitter – Receiver 6. DCS 1 is connected to PC through another Ethernet port 2. 7. DCS 2 is connected to PC through another Ethernet port 3.
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