# Truck Weigh Inmotion Software





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**1. WIM System Overview**

Weigh Inmotion Software (WIMSoft) is application software for weighbridge vehicle weight management in the field of Mining, Logistics, Industrial Plants, Ports, Tollgates and Roadways Industries as private and public usage. This software can be used in all type of vehicle weighbridges, axle weighbridges and wheel weighing pads. WIMSoft supports all type of transactions such as single, first & second, loading, unloading, entry gate, exit gate, multiple and dual scale weighing. The system is designed to accommodate the vehicle weighing processes using weight indicator in dynamic mode of environment.

This system can manage regular weighment of all type of vehicles, data storage and printing weighment slip. In addition to weighment, system also generates vehicle, products, sources, destination, suppliers, driver, transporter, containers, custom fields, date, shifts, weighbridges and operator wise reports. WIMSoft having the features of data managements like invoicing, resource utilization, modify transaction of user entry, reprint slip, data upload and close pending transactions. WIMSoft contains the manageable master data for vehicles, products, sources, destination, suppliers, driver, transporter, containers, customers, resources, weighbridges, shifts, user master with privileges.

WIMSoft has the configurable custom user field, weight indicator, remote display, vehicle positioning, RFID reader/writer, ANPR, Barcode scanner/printer, SMS, SMTP for email with attachment, text file location for SAP/ERP, price, unit and printer settings. This system provides the tools to users to change password, main screen picture, company address, ticket & report format design, software configuration as client or client and centralized PC or client and server data base, server configuration to set the server details, weighbridge configuration, to reset the ticket number and software online activation.

This system provides the diagnostic facility for weighbridge calibration and testing, weighbridge checking, system log data, settings and calibration reports. This system will have fat client architecture to transfer the weighment details into specified SAP, ERP, Cloud, Shared or Main server database (SQL Server, MySQL or Oracle) in the state of online and offline mode.



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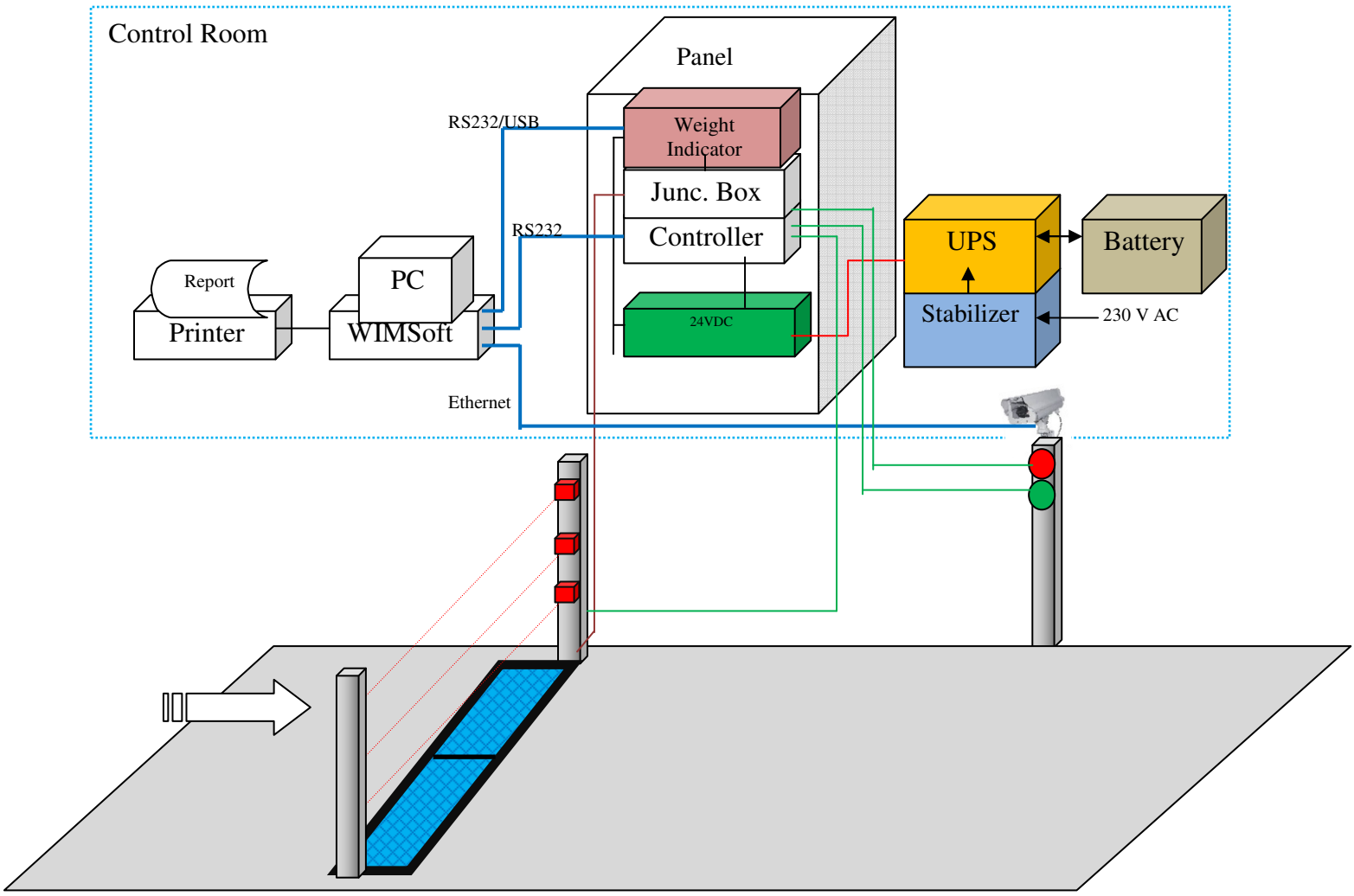
## 2. WIM System Schematic




Note:

a. Axle WB or Weigh Pad can be used to weigh the vehicle for Slow Speed WIM
b. Dynamic Accuracy : ±1% to ±2% for a vehicle (it depends on the machine)
c. Static accuracy : ±20 kg. (it depends on machine)
d. Weighing Speed : Weigh In Motion speeds 1 to 15km/h (for Axle weighing)
e. Direction : Bi directional Weighment
f. Estimated Time : 10 to 20 sec per transaction

**2.1 Bill of Quantity**

| *Sl. No* | *Item* | *Description* | *Make* | *Quantity* |
| --- | --- | --- | --- | --- |
| 1 | Weighbridge | Axle WB or Weigh Pads | Reputed | 1 Set |
| 2 | Load cells | 3.0mV/V | Reputed | 4 Nos. |
| 3 | 4/6 Core Cable | Braded Cable | Reputed | 50m |
| 4 | Junction Box | Surge Protected Junc. Box | Reputed | 1 No. |
| 5 | Weight Indicator | Conv. 400/sec (min) | Reputed | 1 No. |
| 6 | WIMSoft | Weigh Inmotion Software | Mariansoft | 1 No. |
| 7 | Panel | Required size | Reputed | 1 No. |
| 8 | PC | Intel Core i3, 2GB, 500GB | HP or Dell | 1 No. |
| 9 | UPS | 2KVA, 1hr | APC/Reputed | 1 No. |
| 10 | Stabilizer | | Reputed | 1 No. |
| 11 | Poles | | Reputed | 3 sets |
| | **Optional** | | | |
| 12 | VS Controller | Vehicle Separation | Reputed | 1 set |
| 13 | Light Curtain | IR Light Curtain (1 m) | Reputed | 1 set |
| 14 | Printer | Laser / Thermal / Barcode | Reputed | 1 No. |
| 15 | ANPR Camera | IP Based | Reputed | 1 No. |
| 16 | CCTV | IP based | Reputed | 1 No. |
| 17 | RFID Reader | 3m range | Reputed | 1 set |
| 18 | Signal Lights | 2-Red / 2-Green | Reputed | 4 Nos. |
| 19 | Boom Barrier | To control traffic | Reputed | 1 or 2 Nos. |



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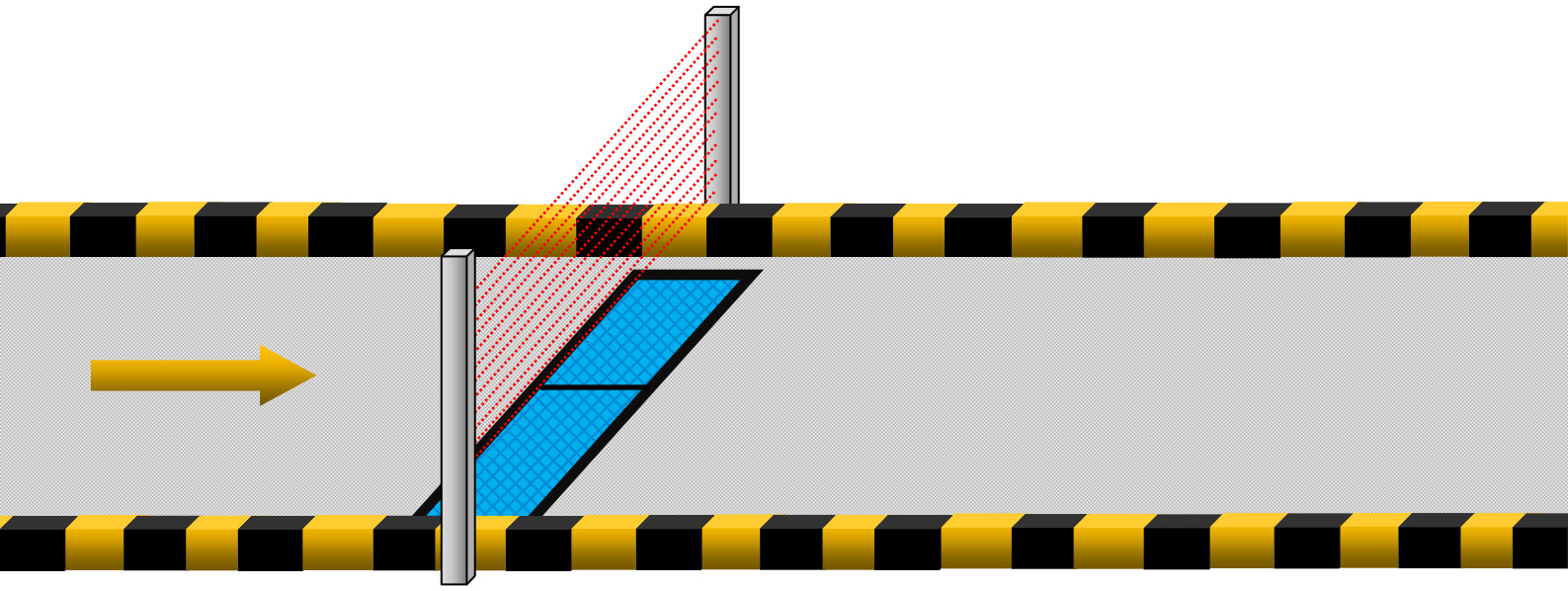
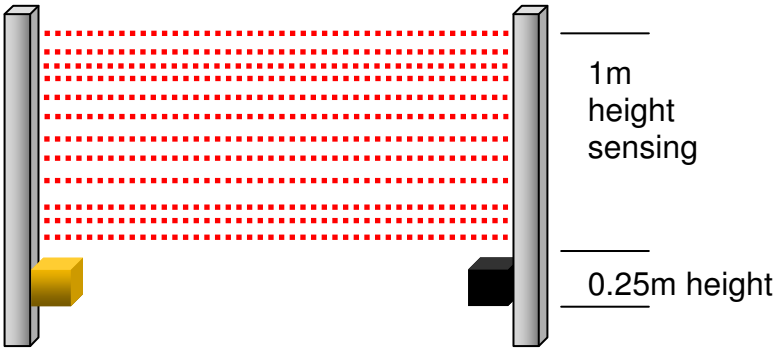
### 2.2 Schematic Diagram for Toll Road









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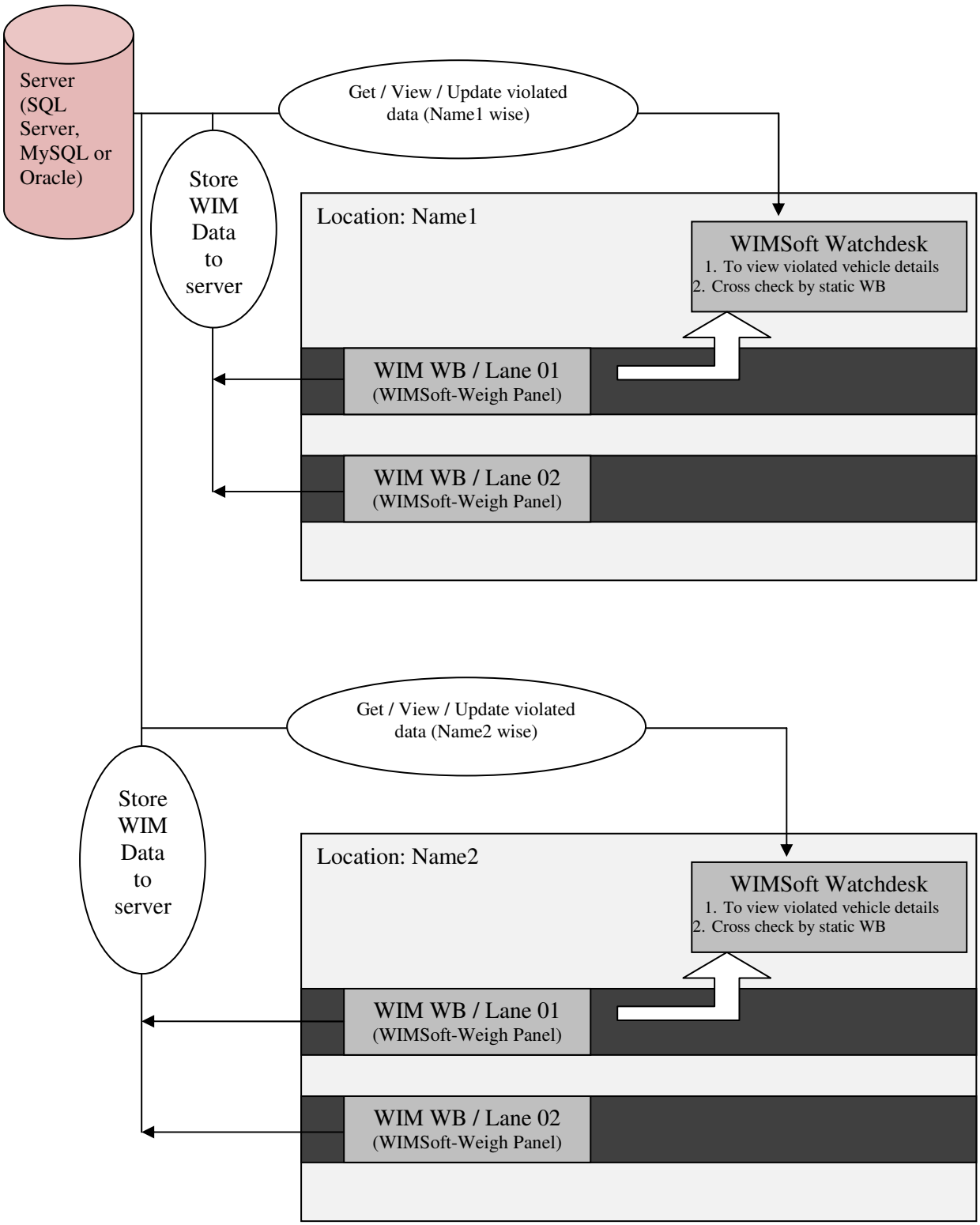
## 3 Networked System Architecture



### 3.1 Data Storage in Remote/Local Server Database

The WIMSoft ***v2.0*** has option to store the data in the server database. The server database can be SQL Server or MySQL server or Oracle and the database must have the table as below format.

This option from main menu Tools >> Software Configuration >> Client Server Database and Tools >> Server Configuration >> set the server details.

The end user can create table for weighment data in server database as below format. This table structure (name must be "**WeightData**") is designed for SQL Server or Oracle database or MySQL.

Table Name: WeightData

| ***Field Name*** | ***Type*** | ***Length*** | ***Description*** |
| --- | --- | --- | --- |
| TicketNo | Char | 20 | Ticket number |
| TruckNo | Char | 20 | Vehicle number |
| Tare | Number | double | Tare weight |
| Gross | Number | double | Gross weight |
| Net | Number | double | Net weight |
| Material | char | 255 | Material name |
| MatId | char | 25 | Material Code |
| Source | char | 100 | Source name |
| SouId | char | 10 | Source Code |
| Destination | char | 100 | Destination name |
| DesId | char | 10 | Destination Code |
| Customer | char | 255 | Customer name |
| CusId | char | 25 | Customer Code |
| Supplier | char | 100 | Supplier name |
| SupId | char | 10 | Supplier Code |
| Drivername | char | 100 | Driver name |
| DriId | char | 10 | Driver Id |
| Transporter | char | 100 | Transporter Name |
| TraId | char | 10 | Transporter Id |
| ConWeight | Number | double | Container weight |
| ConId | char | 50 | Container Code |
| Field1 | char | 50 | Field 1 name |
| Field2 | char | 50 | Field 2 name |
| Field3 | char | 50 | Field 3 name |
| Amount | Number | double | Bill amount |
| Discount | Number | double | Discount amount |
| Axles | Number | Integer | No. of axles |



| | | | |
| --- | --- | --- | --- |
| VType | char | 50 | Vehicle Type |
| TruckImage | BLOB | Image | Vehicle Image |
| WDate | Char | 30 | Weight date |
| WTime | Char | 30 | Weight time |
| WShift | Char | 10 | Weight shift |
| WType | Char | 25 | Transaction type |
| WBType | char | 10 | Weighbridge type as full or axle |
| WBCode | Char | 20 | Weighbridge code fir unique |
| WBUse | char | 10 | Private or Public use |
| Operator | char | 50 | Operator (user) name |
| Remarks | Char | 25 | Remarks |
| WStatus | Char | 10 | true or false for first or second to show in pending list |
| InvoiceSts | Char | 10 | true or false to in bending list for invoice |
| UpdateSts | Char | 10 | true or false to server database |
| CompleteSts | Char | 10 | true or false for multiple weighment |
| Material1 | Char | 25 | Material for first transaction |
| MatId1 | Char | 10 | Material Id for first transaction |
| Amount1 | Number | double | Bill amount for first transaction |
| Discount | Number | double | Discount amount |
| TruckImage1 | BLOB | Image | Vehicle Image for Second Transaction |
| WDate1 | Char | 30 | Weight date for first transaction |
| WTime1 | Char | 30 | Weight time for first Transaction |
| WShift1 | Char | 10 | Weight shift for first Transaction |
| Operator1 | char | 50 | Operator (user) name for first transaction |
| UnloadGross | Number | double | unloading gross weight |
| Deviation | Number | double | Diff. between loaded and unloaded gross weight |
| Speed | Number | double | Speed of the Vehicle |
| Inventory | Char | 10 | Status of Transaction is updated to Inventory |
| TagNo | Char | 25 | RFID / Card No. |
| VClassLogo | BLOB | Image | Vehicle Class Logo |
| NumPlate | BLOB | Image | Vehicle Number plate |
| NumPlate2 | BLOB | Image | Vehicle Number plate for second weighment |
| Ticket | Char | 20 | Ticket No. |

The end user can create table for weighment data in server database as below format. This table structure (name must be "**MultiWeight**") is designed for SQL Server or Oracle database or MySQL.

Table Name: MultiWeight



| *Field Name* | *Type* | *Length* | *Description* |
| --- | --- | --- | --- |
| Ticket | Char | 20 | Ticket number |
| ItemName | Char | 220 | Axle no. 1, Axle2 no. 2, etc.. |
| LeftWheel | Number | double | Axle weight |
| RightWheel | Number | double | Axle weight (if dual scale) |
| FAxle | Number | double | Total Axle weight by First Weighment |
| UpStatus | char | 10 | Status for Upload to server |
| MWTime | char | 25 | Weighment Time |
| ASpeed | Number | double | Axle speed |
| SAxle | Number | double | Total Axle weight by Second Weighment |

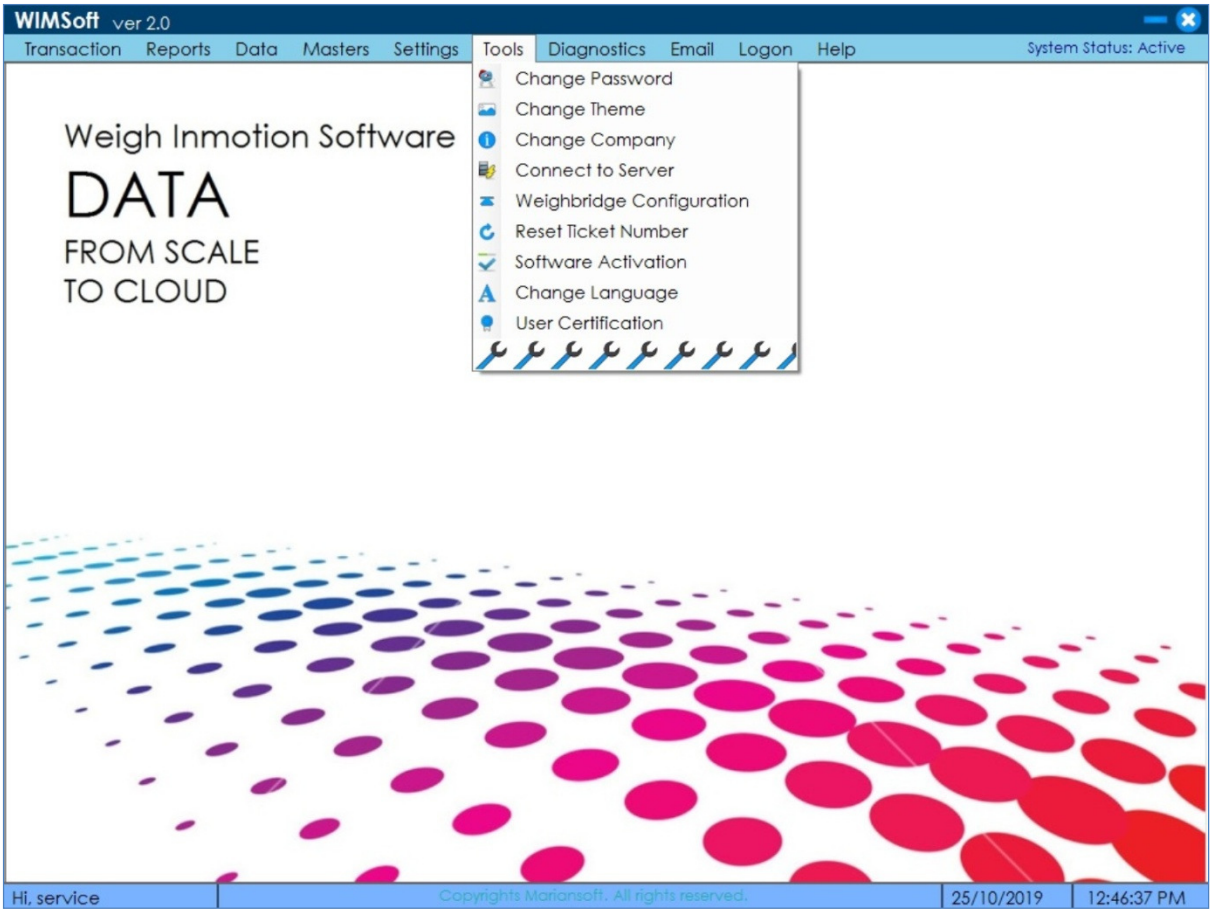
The end user can create table for weighment data in server database as below format. This table structure (name must be "**VTypes**") is designed for SQL Server or Oracle database or MySQL.

Table Name: VTypes

| *Field Name* | *Type* | *Length* | *Description* |
| --- | --- | --- | --- |
| VCode | Char | 10 | Vehicle Type Code |
| VType | Char | 200 | Vehicle Type Name |
| VClass | Char | 100 | Vehicle Class |
| Tare | Number | double | Empty Weight of the vehicle |
| Gross | Number | double | Permitted Gross Weight of the vehicle |
| Tolerance | Number | double | Allowed Overload / Tolerance weight |
| Wheels | Number | int | No. of axles/wheels |
| Excemption | Char | 10 | Fee exemption as No or Yes |
| LocalAmount | Number | double | Fee Charge to pass the road for Local District |
| OthersAmount | Number | double | Fee Charge to pass the road for Local others |
| Allowedload | Number | double | Allowed excess weight |
| VClassLogo | BLOB | Image | Vehicle Class Logo |



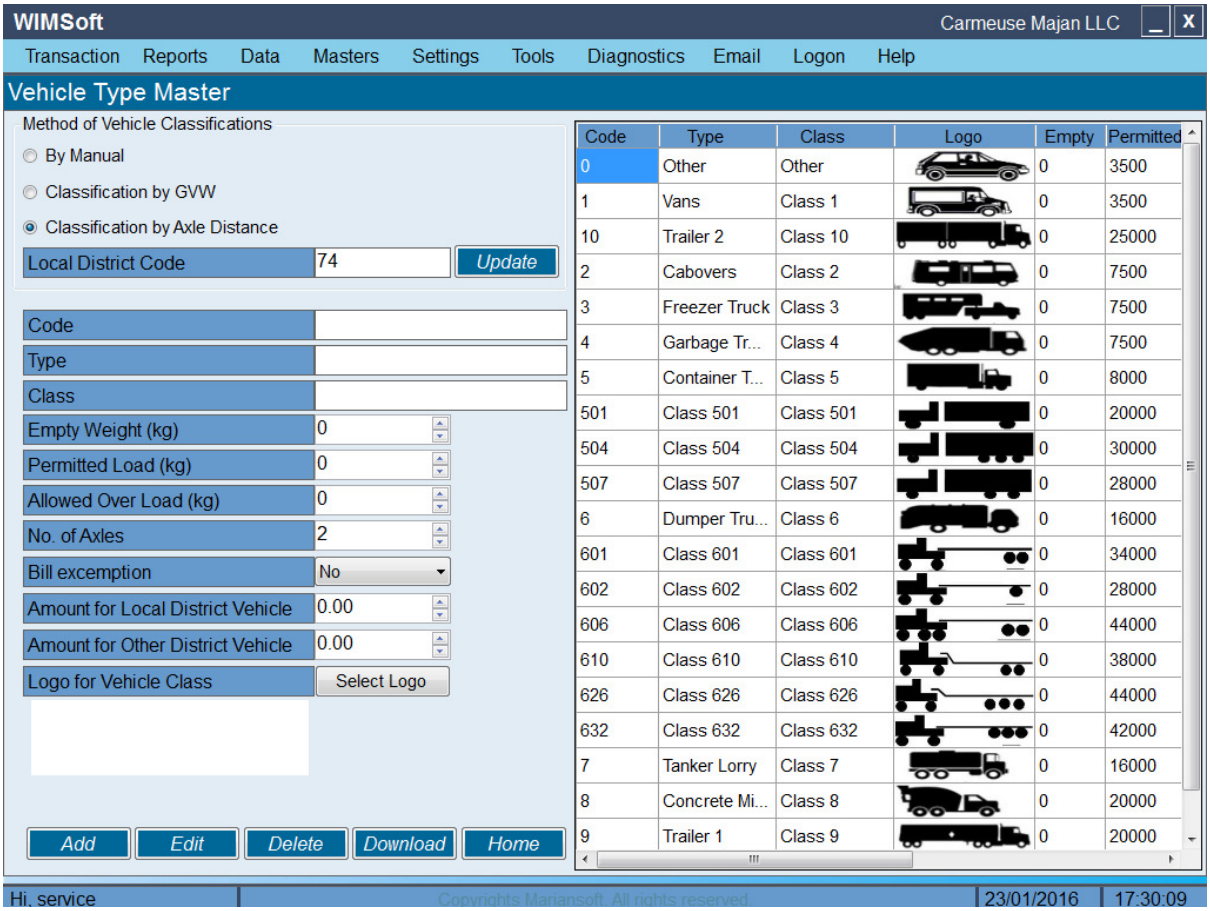
### 4.1 Home Page




Transaction contains the sub menus as follows;

1. Single, this will allows you to take the single WIM transaction
2. First and Second, this will allow you to take First WIM and Second WIM transaction
3. Watch Desk, this menu will allow you to monitor the over load weight transaction and to take the static weighment for cross checking.

### 4.2 Vehicle Classification – Vehicle Type Master

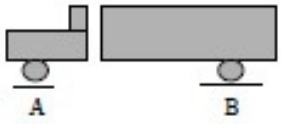



This vehicle Type master allow to configure the method of vehicle classification based on Manual selection, GVW -Gross Vehicle Weight or Axle Distance

### 4.2.1 Axle Distance based vehicle classification

## Index measurement

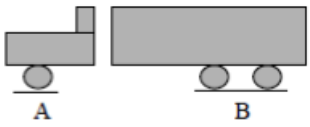
| code: | A | B | A+B |
|---|---|---|---|
| 501 | 8t | 13t | 20t |

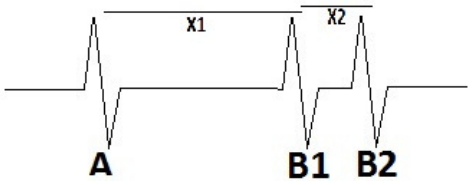




if: Just 2 Sense

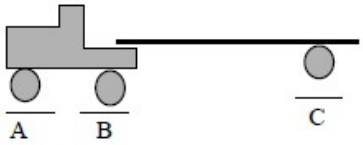
| code: | A | B | A+B |
|---|---|---|---|
| 507 | 8t | 22t | 28t |

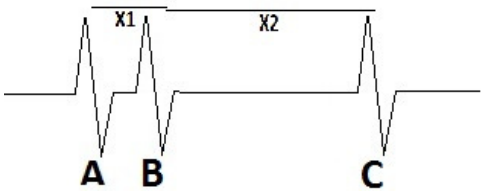



if: Just 3 Sense
If: x1 > x2

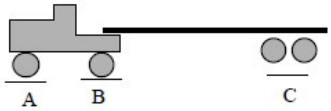
| code: | A | B | C | A+B | A+B+C |
|---|---|---|---|---|---|
| 602 | 8t | 13t | 13t | 20t | 28t |

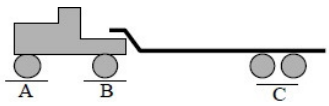


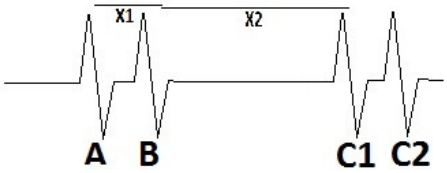




if: Just 3 Sense
If: x1 < x2

| code: | A | B | C | A+B | A+B+C |
|---|---|---|---|---|---|
| 601 | 8t | 13t | 22t | 20t | 34t |
| code: | A | B | C | A+B | A+B+C |
| 610 | 8t | 13t | 22t | 20t | 38t |

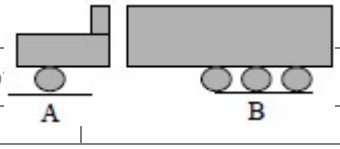


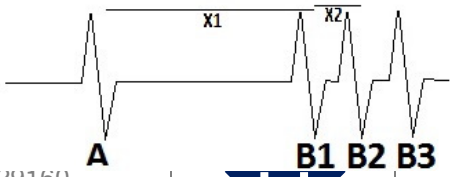




if: Just 4 Sense
If: x1 < x2

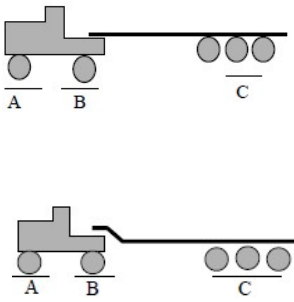
| code: | A | B | A+B |
|---|---|---|---|
| 504 | 8t | 24t | 30t |

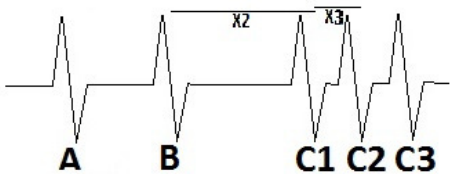


if: Just 4 Sense
If: x1 > x2

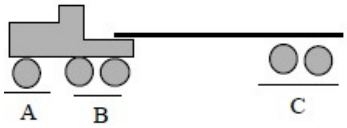
| code: 632 | A 8t | B 13t | C 24t | A+B 20t | A+B+C 42t |
|---|---|---|---|---|---|
| code: 626 | A 8t | B 13t | C 30t | A+B 20t | A+B+C 44t |

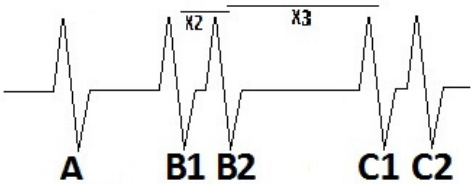



if: Just 5 Sense
If: x2 > x3
If: 44t>W>42t = send note

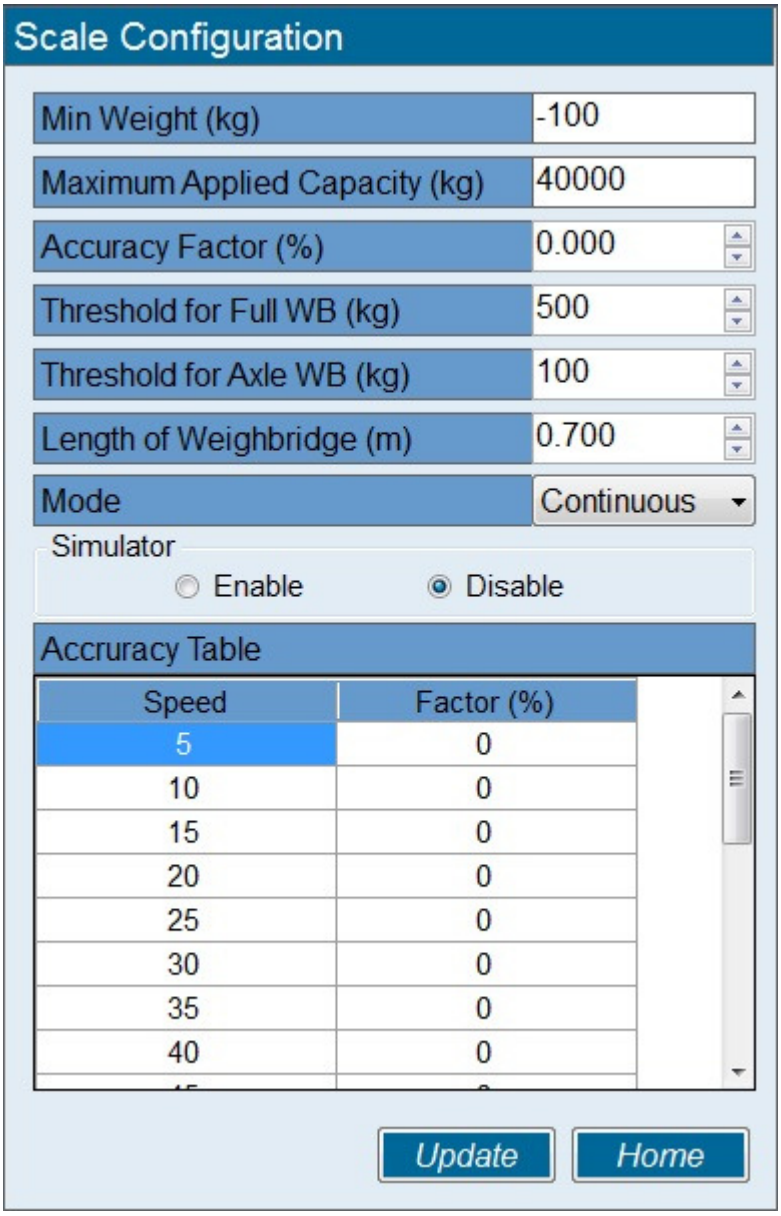
| code: 606 | A 8t | B 22t | C 22t | A+B 28t | A+B+C 44t |
|---|---|---|---|---|---|




if: Just 5 Sense
If: x2 < x3

### 4.3 Scale Configuration




Using this menu, you can configure the Weighbridge with min and max weight of the weighbridge, accuracy factor for full draft weighbridge, threshold range to start weighment and mode of weighment as Continuous or WIM. The accuracy table will allow you to configure the Speed versus required +/- accuracy factor.

### 4.3.1 WIM mode data transmission by weight indicator

WIMSoft will send "**w**" command to indicator at once and indicator will send following string to PC for every axle.

**#001000000003500009.55**

Description as follows

**#** - Start string

**001** – Axle running Number (it can be reset when 999)

**000000003500** – Weight Reading

**0009.55** – Speed

WIMSoft will send "**x**" command to indicator at once and indicator will stop the WIM mode and change to continuous mode (Refer section 7).



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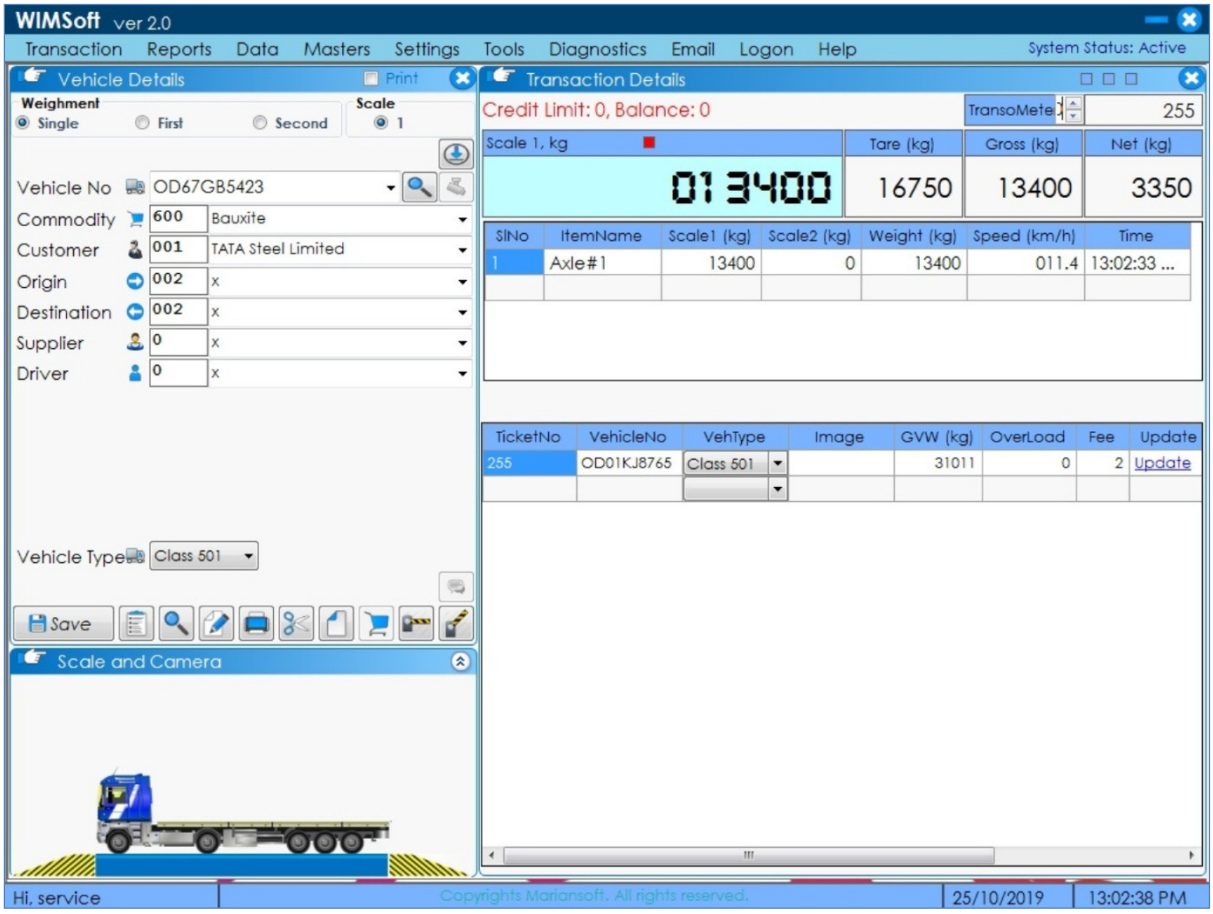
### 4.4 WIM Weigh Panel







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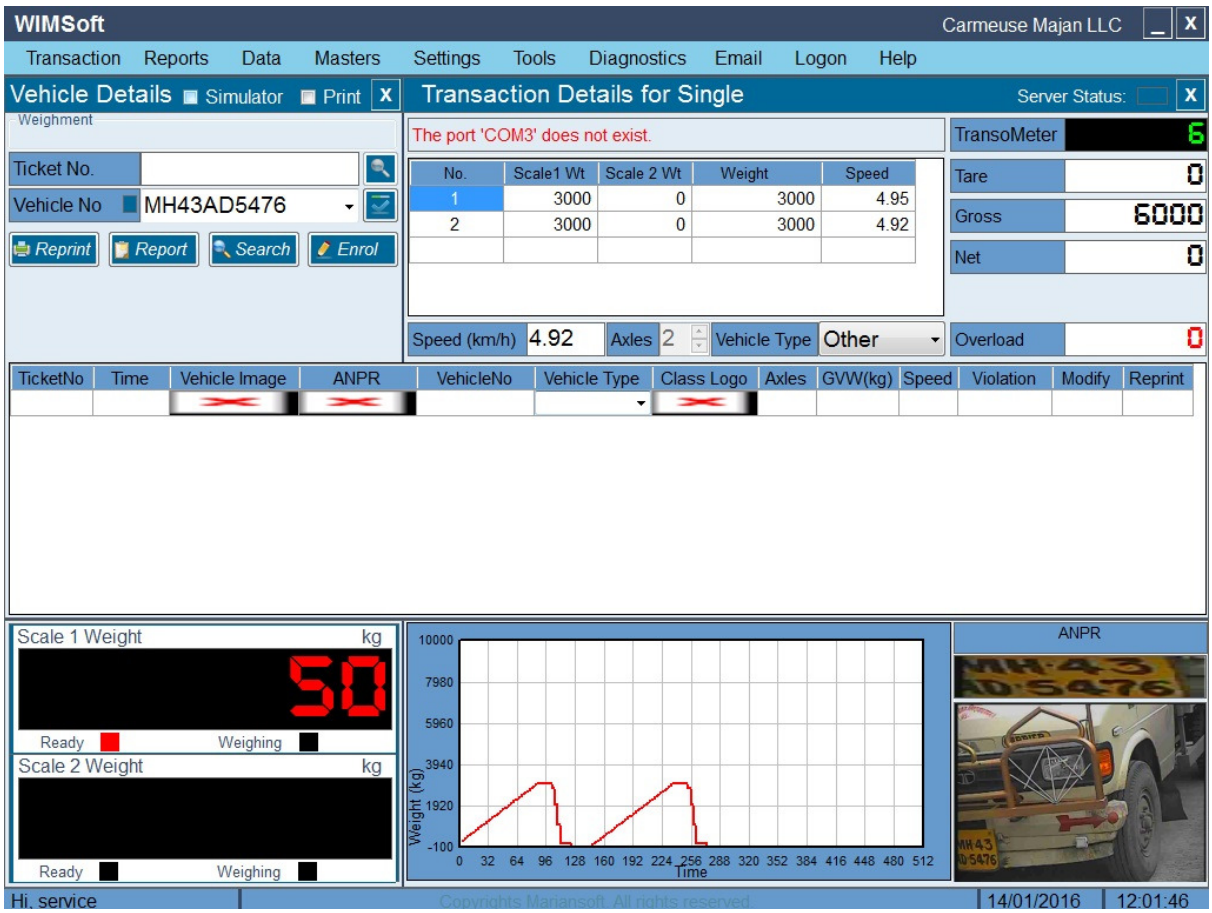


This weigh panel measures the axle wise weight, speed, Gross weight of the vehicle, Capture vehicle images, Vehicle Classification based on GVW or Axle distance, overload details and it prints the weighment slip.

This screen will display the ongoing real time weighing records and you can click Axles column to view axle's no., weight and speed details.

The search button allows you to view and print the weighed transaction details.

### 4.5 WIMSoft – Weighment Ticket for Thermal or Barcode Printer




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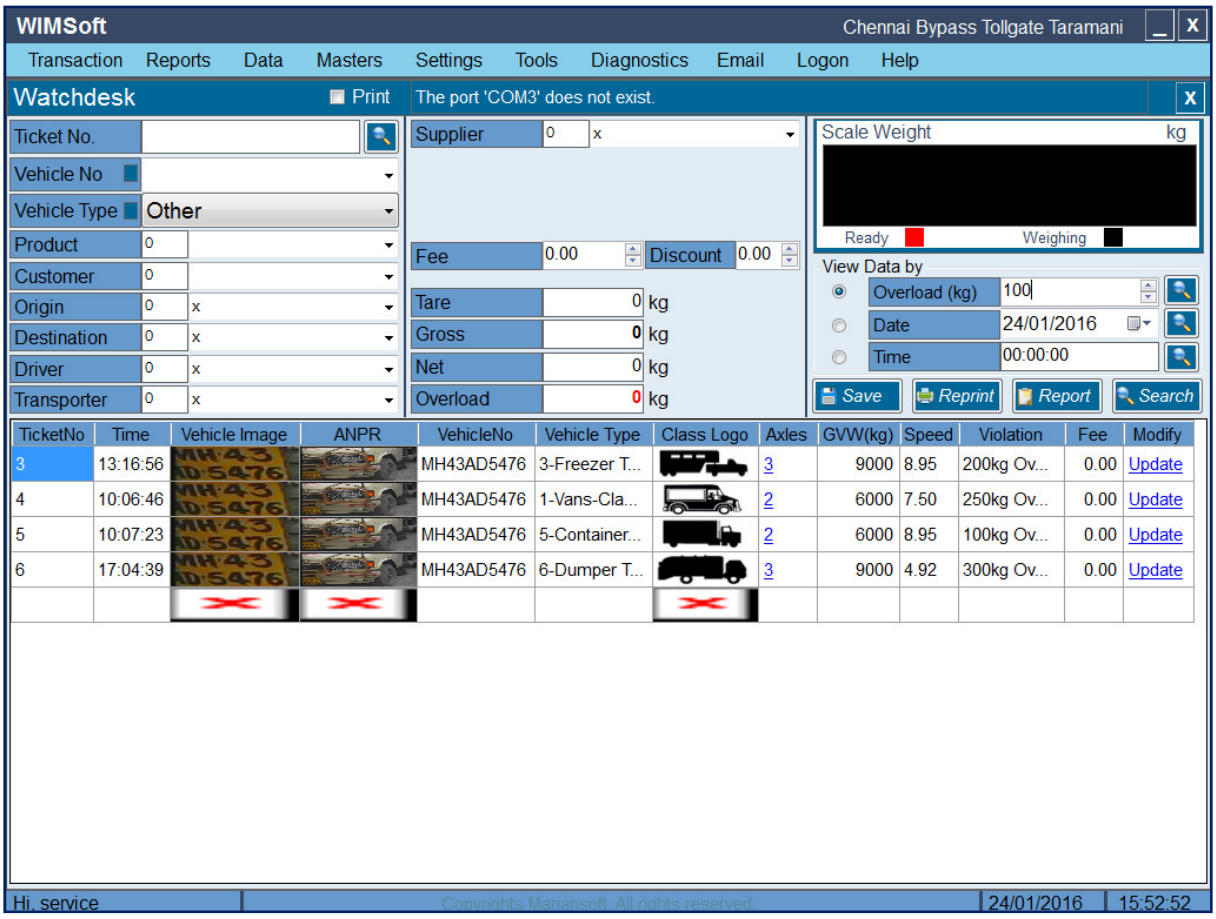
### 4.6 Weighment Certificate

Carmeuse Majan LLC
Muscat

| VEHICLE INFORMATION | | ANPR | VEHICLE CLASS LOGO |
|---|---|---|---|
| Ticket Number | 5 |  |  |
| Date & Time | 11/01/2016 10:07:23 | | |
| Vehicle Number | MH43AD5476 | VEHICLE OVERVIEW | |
| Vehicle Type | 5-Container Truck-Class |  | |
| WB/Lane No. | 03-Bangalc | | |
| Fee/Fine Amount | 0.00 / 0.00 | | |
| Origin | x | | |
| Destination | x | | |
| MEASUREMENT DETAILS | | | |
| Speed | 4.93 km/h | | |
| Overload | **100** kg | | |
| No. of Axles | 2 | | |
| Axles 1 | 3000 kg | | |
| Axles 2 | 3000 kg | | |
| Gross Weight | **6000** kg | OPERATOR NAME & SIGNATURE | |
| Net Weight | 6000 kg | Administrator 22/01/2016 13:28:20 | |

This weighment slip will be printed for every WIM weighment as per designed format. The weighment slip format can be redesign by using reporting tool.

### 4.7 Watch desk for Overloaded Vehicles and Static Weighment



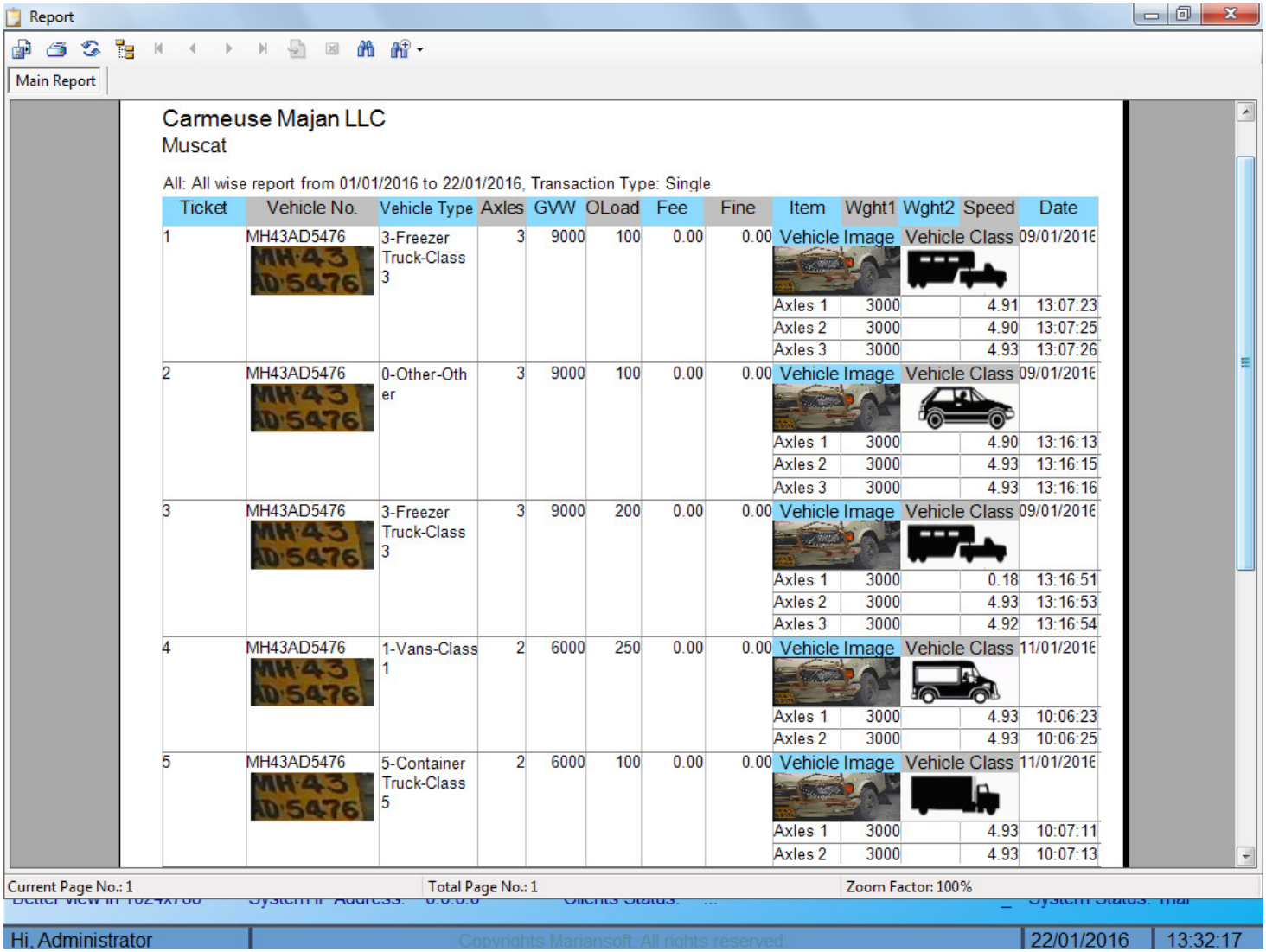

This watch desk menu will monitors the location (WB Lane) wise overloaded vehicle information and it also allow you to take the static weighment to cross check the overload.

The screen allows you to fetch & display the overloaded records by overload weight, date or time.

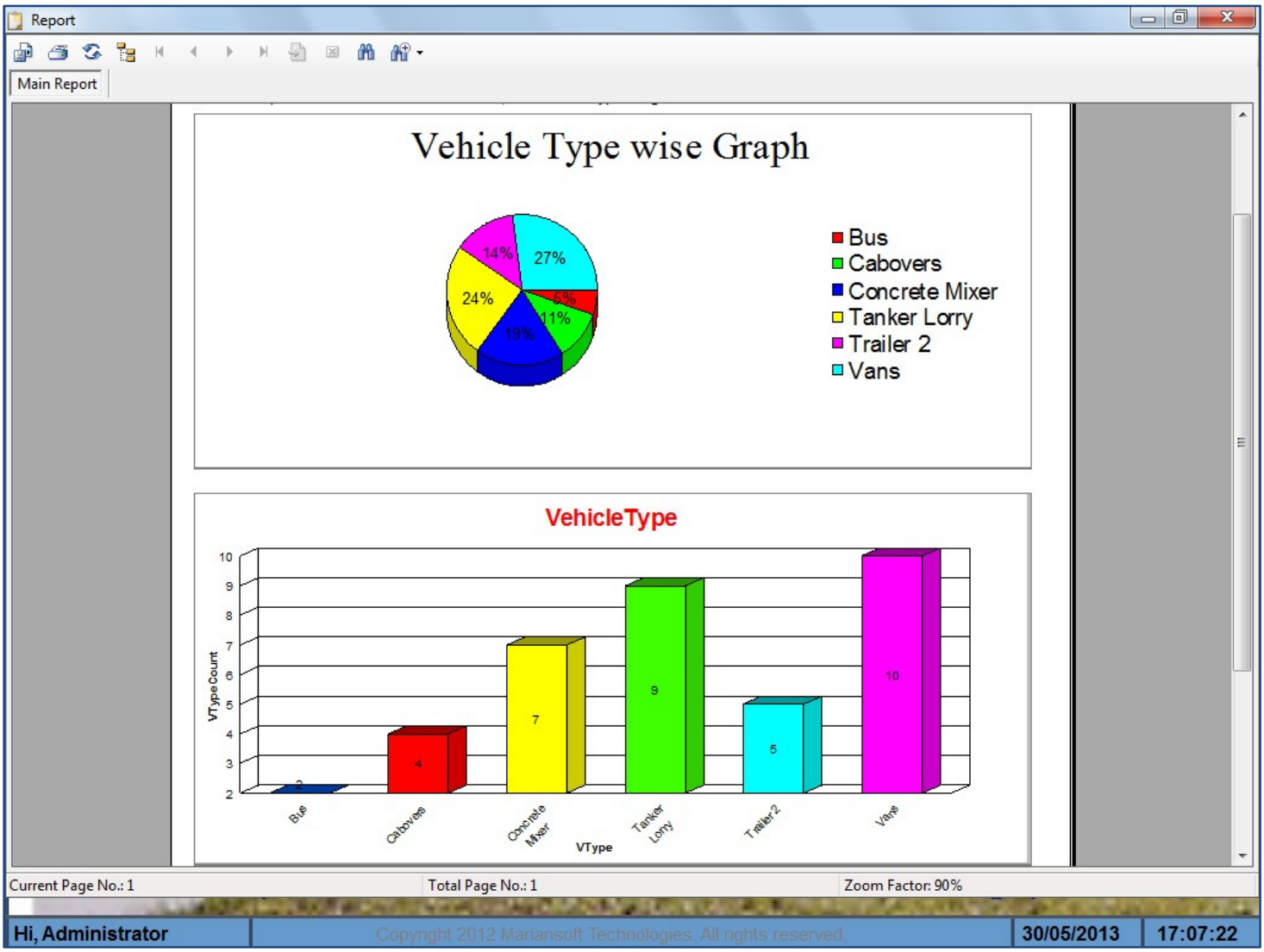
This screen will display the ongoing real time weighing records and you can click Axles column to view axle's no., weight and speed details.

The search button allows you to view and print the weighed transaction details.

### 4.8 Reports


Report
Main Report
Carmeuse Majan LLC
Muscat
All: All wise report from 01/01/2016 to 22/01/2016, Transaction Type: Single
Ticket | Vehicle No. | Vehicle Type | Axles | GVW | OLoad | Fee | Fine | Item | Wght1 | Wght2 | Speed | Date
1 | MH43AD5476 | 3-Freezer Truck-Class 3 | 3 | 9000 | 100 | 0.00 | 0.00 | Vehicle Image | Vehicle Class | 09/01/2016
Axles 1 3000 4.91 13:07:23
Axles 2 3000 4.90 13:07:25
Axles 3 3000 4.93 13:07:26
2 | MH43AD5476 | 0-Other-Other | 3 | 9000 | 100 | 0.00 | 0.00 | Vehicle Image | Vehicle Class | 09/01/2016
Axles 1 3000 4.90 13:16:13
Axles 2 3000 4.93 13:16:15
Axles 3 3000 4.93 13:16:16
3 | MH43AD5476 | 3-Freezer Truck-Class 3 | 3 | 9000 | 200 | 0.00 | 0.00 | Vehicle Image | Vehicle Class | 09/01/2016
Axles 1 3000 0.18 13:16:51
Axles 2 3000 4.93 13:16:53
Axles 3 3000 4.92 13:16:54
4 | MH43AD5476 | 1-Vans-Class 1 | 2 | 6000 | 250 | 0.00 | 0.00 | Vehicle Image | Vehicle Class | 11/01/2016
Axles 1 3000 4.93 10:06:23
Axles 2 3000 4.93 10:06:25
5 | MH43AD5476 | 5-Container Truck-Class 5 | 2 | 6000 | 100 | 0.00 | 0.00 | Vehicle Image | Vehicle Class | 11/01/2016
Axles 1 3000 4.93 10:07:11
Axles 2 3000 4.93 10:07:13
Current Page No.: 1
Total Page No.: 1
Zoom Factor: 100%
Hi, Administrator
Copyrights Mariansoft. All rights reserved.
22/01/2016
13:32:17

### 4.9 WIMSoft – Vehicle Type wise Graphical Report







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### 4.10 WIMSoft – Salient Features

- Measures Axle Weight, Speed, No. of Axles, Gross Weight and Overload
- Automatic Vehicle Classification based on GVW or Axle Distance
- Overload Detection based on GVW
- Connect to any Weight Transmitter
- Real Time data acquisition
- Better accuracy and master to set Accuracy Factor and Speed
- Real Time Graph Plotting for analysis
- Fully Automatic Weighing
- Weighing in WIM mode or Continuous mode
- Automatic Vehicle Detection based on the Weight
- Vehicle Separation using Light curtain and PLC
- Vehicle separation by WIMSoft with settable time delay
- Vehicle Image capture using ANPR / CCTV, store and print
- Weighment Data to Server database such as SQL Server, MySQL or Oracle
- Weighment Data to Text file or XML for ERP/SAP application
- Weighment Data to another COM port for Toll software
- Report generation with all date, period, shift, vehicle type, operator wise etc

### 4.11 WIMSoft – Minimum System Requirement

| | |
| --- | --- |
| Operating System | : Windows XP / 7 / 8 / 8.1 / 10, 32 or 64 bit |
| Office Tools | : Microsoft Office – Access 2003/2007/2010 or higher |
| Anti-virus | : Microsoft Security Essential |
| Hard Disk | : 160 GB or higher |
| RAM | : 2 GB or higher |
| Processor | : Any of the latest Intel Core processor |
| Motherboard | : Intel original |
| Parallel Port | : 1 No. for printer |
| Serial Port | : 2 Nos. (1No. inbuilt and PCI card for 2 Nos.) |
| USB Port | : 2 Nos. (Minimum) |
| Ethernet port | : 1 No. |
| Monitor | : TFT/LED/LCD 15"/17"/19" |
| CD Drive | : DVD R/W combo drive |
| Mouse | : Optical mouse, 1 No. |
| Keyboard | : Multimedia keyboard, 1No. |


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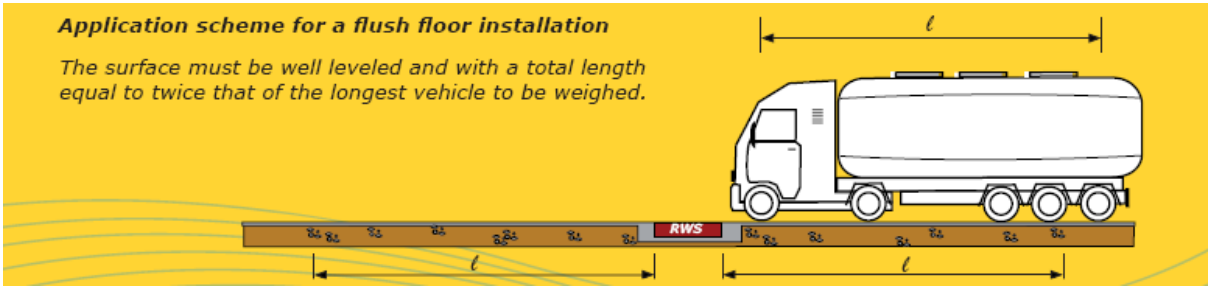
## 5. WIM Weighbridge


WIM System Installation

**Note:**

The WIM structure must have the **outlet** for water flow due to rain or overflow by liquid carriers.

The road must have **drainage** to flow the water from machine.

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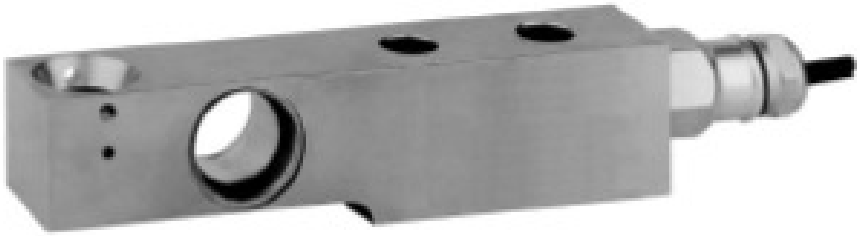
## 6. Load Cell

FLINTEC

### Type SB4 Load Cell



**Product Description**

The type SB4 is a stainless steel beam type load cell with complete hermetic sealing. It is a perfect fit for use in harsh industrial environments.

**Application**

- Platform scales, hopper and tank scales

**Key Features**

- Wide range of capacities from 5 kN to 100 kN (510 kg to 10197 kg)
- Stainless steel construction
- Environmental Protection IP68 with complete hermetic sealing
- Unique blind loading hole
- High input resistance
- Calibration in mV/V Ω

**Options**

- OIML approval to C3 MI7.5
- OIML approval to C4 MI7.5 (for 5...50 kN)

**Approvals**

- OIML approval to C1 (Y = 5 000), C3, C3 MI7.5, C4 and C4 MI7.5 (Y = 11 000)
- NTEP approval to 5 000 intervals, Class III (for 5 kN to 50 kN)
- ATEX hazardous area approval for Zone 0, 1, 2, 20, 21 and 22
- FM hazardous area approval

**Packed Weight**

| Capacity (kN) | 5–20 | 50 | 100 |
|---|---|---|---|
| Weight (kg) | 1.4 | 2.9 | 7.1 |

**Available Accessories**

- Compatible range of application hardware
- Compatible range of electronics

A01-8e5-GB-1(3)

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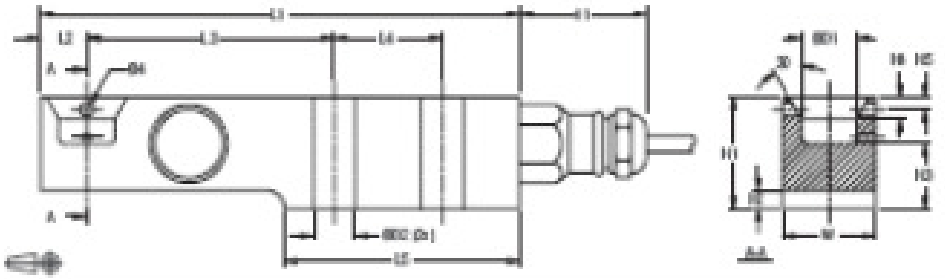
## Specifications

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Maximum capacity | ($E_{max}$) | kN | 5 / 10 / 20 / 50 / 100 | | | | 5 / 10 / 20 / 50 | |
| Metric equivalents [1 kN ≙ 0.10197 kg] | | kg | 510 / 1020 / 2039 / 5099 / 10197 | | | | 510 / 1020 / 2039 / 5099 | |
| Accuracy class according to OIML R60 | | | (old) | C1 | C2 | C2 M.F.A | C4 | C4 M.F.A |
| Maximum number of verification intervals | ($n_{max}$) | | n.a. | 1000 | 2000 | | 4000 | |
| Minimum load cell verification interval | ($v_{min}$) | | n.a. | $E_{max}$ / 5000 | $E_{max}$ / 10000 | | | |
| Temperature effect on minimum dead load output | ($T_{Dmin}$) | %/10 K | ± ≤ 0.0400 | ± ≤ 0.0275 | ± ≤ 0.0137 | | | |
| Temperature effect on sensitivity | ($TC_{SC}$) | %/10 K | ± ≤ 0.0200 | ± ≤ 0.0150 | ± ≤ 0.0100 | | ± ≤ 0.0050 | |
| Combined error | | %rd | ± ≤ 0.0500 | ± ≤ 0.0300 | ± ≤ 0.0200 | ± ≤ 0.0150 | ± ≤ 0.0100 | ± ≤ 0.0100 |
| Non-linearity | | %rd | ± ≤ 0.0400 | ± ≤ 0.0200 | ± ≤ 0.0100 | ± ≤ 0.0100 | ± ≤ 0.0125 | ± ≤ 0.0125 |
| Hysteresis | | %rd | ± ≤ 0.0400 | ± ≤ 0.0200 | ± ≤ 0.0100 | ± ≤ 0.0050 | ± ≤ 0.0125 | ± ≤ 0.0095 |
| Creep error [30 min after $y_0$ / DR | | %rd | ± ≤ 0.0500 | ± ≤ 0.0400 | ± ≤ 0.0100 | ± ≤ 0.0050 | ± ≤ 0.0125 | ± ≤ 0.0095 |
| Rated Output | (RO) | mV/V | 2 ± 0.1% | | | | | |
| Calibration in mV/V Ω (A...J classified) | | % | ± ≤ 0.05 (≥ ± 0.005) | | | | | |
| Excitation voltage | | V | 5...15 | | | | | |
| Zero balance | | %rd | ± ≤ 1 | | | | | |
| Input resistance | ($R_{LC}$) | Ω | 1100 ± 50 | | | | | |
| Output resistance | ($R_{out}$) | Ω | 1080 ± 2 | | | | | |
| Insulation resistance (100 V DC) | | MΩ | ≥ 5000 | | | | | |
| Safe load limit | ($E_{max}$) | % $E_{max}$ | 300 | | | | | |
| Ultimate load | | % $E_{max}$ | 300 | | | | | |
| Safe side load | | % $E_{max}$ | 100 | | | | | |
| Compensated temperature range | | °C | -10...+40 | | | | | |
| Operating temperature range | | °C | -40...+60 (-50...+60) | | | | | |
| Load cell material | | | stainless steel 17-4 PH (1.4548) | | | | | |
| Sealing | | | complete hermetic sealing; cable entry sealed by glass to metal header | | | | | |
| Protection according EN 60 529 | | | IP68 (up to 2 m water depth) / IP69K | | | | | |

The limits for Non-Linearity, Hysteresis, and TCsc are typical values.
The data of Non-Linearity, Hysteresis and $TC_{SC}$ meets the requirements according to OIML R60 with $p_{LC}$=0.7.

## Dimensions (in mm)

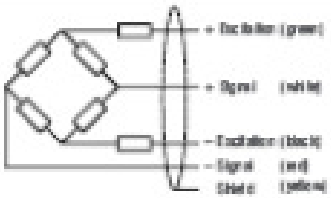



| Type | L1 | L2 | L3 | L4 | L5 | H1 | H2 | H3 | H4 | H5 | W | D1 | B2 | Mounting bolts | Torque* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB4-5/10/20 kN | 160 | 16 | 80 | 36 | 76 | 36 | 6 | 21 | 7 | 4 | 30 | 18 | 13 | M12 8.8 | 60 Nm |
| SB4-50 kN | 160 | 21 | 105 | 40 | 92 | 46 | 8 | 28.5 | 8 | 8 | 40 | 25 | 21 | M20 8.8 | 400 Nm |
| SB4-100 kN | 240 | 30 | 135 | 50 | 132 | 73 | 12.5 | 42 | 18 | n.a. | 60 | 30 | 27 | M24 8.8 | 700 Nm |

* Torques given are for oiled threads.

## Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane
- Cable length: 3 m for SB4-5 kN/10 kN/20 kN
  4.5 m for SB4-50 kN/100 kN
- Cable diameter: 5 mm
- On customer enquiry the shield is either floating or connected to the load cell body




A01-Rev5-GB-2(2) Specifications and dimensions are subject to change without notice.

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## 7. WIM Indicator


### TYPICAL APPLICATIONS

- Dynamic weighing –vehicles, livestock
- Dynamic force measurement
- High speed checkweighing
- High speed filling / batching
- Beltweighing
- Force measurement / Press Machines
- WIM-Monitor for analysis of dynamic systems

### MAIN SPECIFICATIONS

#### LOAD CELL INPUT

- 5 Volt excitation for upto 10 load cells (350 Ohm)
- Compatible with 1, 2 & 3 mV/V load cells
- Low noise wide bandwidth amplifier & 24 bit ADC

#### STANDARD INTERFACES

- USB 2.0 Full Speed compatible
- Combined RS232/RS485

#### OUTPUTS

- 4 opto-isolated solid state relays rated at 50V, 300mA. Configurable as setpoints, latching alarms or user outputs. Each with status LED.
- Analog output of 0 to 2.5V with 16 bit resolution.

#### DIGITAL INPUTS

- 4 opto-isolated inputs with 10-30 VDC range. Each with status LED
- Input #1 configurable as high speed counter
- Input #2 configurable as sample trigger

#### DIMENSIONS (MM)

- Standard OEM model 160 x 100pcb (Eurocard)
- ABS cased option

#### EXPANSION

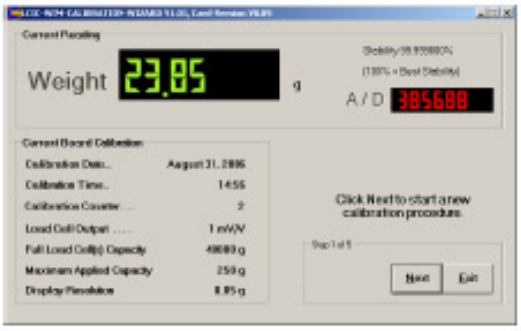
- Board is ready to accept piggy-back modules for OEM special requirements

### FEATURES

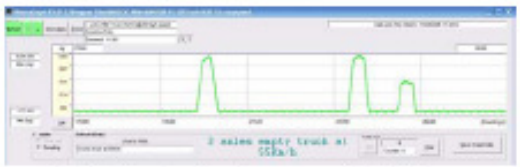
- Very high speed; upto 52,000 samples per second
- 24 Bit A/D with ± 8 million counts for tension and compression applications
- Powerful 32 bit / 135 MIPS DSP for high speed on-board processing. OEM applications can be embedded on the board
- 4 opto-isolated outputs configurable as setpoints, latching alarms or user outputs
- 4 opto-isolated inputs; Input #1 has counter option
- Analog output 0 to 2.5V 16 bit
- 8 digit LED display
- On board temperature sensor
- USB Interface; 2.0 Full Speed compatible
- RS232/RS485 communications. Ideal for PLC based applications
- Multiple boards may be connected via USB or RS485

### SOFTWARE

LCIC-WIM Calibration Wizard software is included with each board:

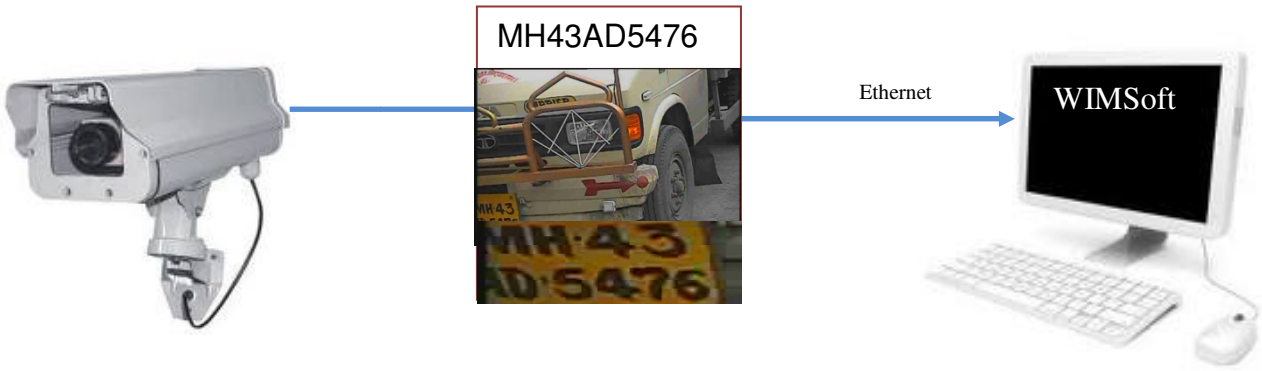



Included is the LCIC-WIM Monitor utility which is a vital tool for analysing dynamic load/force systems. It takes full advantage of the board's speed:



Graph shows truck axles measured at 55 km/hr

## 8. Automatic Number Plate Recognition (ANPR)

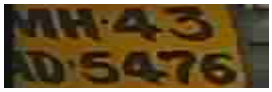



### Technical Features

MH43AD5476

This ANPR system will generate the Object Character Recognition (OCR) of the Vehicle number and it stores into the specified text file in PC.

This ANPR system will generate the Front image of the vehicle and it stores into the specified file location in PC.



This ANPR system will generate the cropped image of the vehicle number and it stores into the specified file location in PC.

***Note:*** *The above functionality can be done by ANPR software which will be supplied and installed in PC by Delopt. The enclosure for the camera may change depends on the site location. This system can be manufacture, supply, and service and maintain by Delopt (refer website www.delopt.co.in).*

The vehicle image can be captured by WIMSoft using **CCTV**.

The vehicle information can be captured using **RFID Card Reader**.

## 9. Vehicle Separation Controller (PLC)

This controller is to give input by Light Curtain for vehicle separation, to give output for enable for entry Boom barrier, Green Light, Red Light and Exit Boom barrier.

Below is the string format which has to transmit to PC when the Input and Output devices are connected by PLC.

Input string from PLC:

00000000\r\n

Description

00000000– Input status 1 or 0, 1 as input HIGH, 0 as input LOW

Output string to PLC:

11111111

Description

11111111 – Output status 1 or 0, 1 as output HIGH, 0 as output LOW



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## 10. Questionnaire

1. What would be the **accuracy** of your WIM system?
2. What is **capacity** of your proposed WIM system?
3. What would be the **size** of your WIM system?
4. What's the **life** of your WIM system?
5. What's the weighing **principle** of your WIM system?
6. How many **load cells** are used in your system?
7. What **kind** of load cells are using in your system?
8. What would be the **overload** capacity of your WIM system?
9. What would be the **maximum** applied capacity?
10. Is it **unidirectional** or bidirectional weighment?
11. What's the **protection** class of your system?
12. What will be **excitation** voltage to your WIM system?
13. What's the **sampling** rate of your weight transmitter?
14. How does your WIM software will **capture** the weight of the vehicle?
15. Will it save and print the weighment details as **automatic**?
16. Will it generate the date and period wise **report**?
17. Will it work for **static** mode of weighment?
18. What would be the **distance** between WIM system and control room?
19. How does it **differentiate** the vehicles to complete the transaction?
20. What would be the **throughput** (trucks per hour) of your WIM system?
21. What will be range of **speed** of vehicle for the weighment?
22. What are the **types** of vehicles can be weighed?


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