



Accurately Weighing Africa



MULTI DECK WEIGHBRIDGE

(MP-DI)

Heavy Duty High Frequency Axle Weighing

SASCO WEIGHING SYSTEMS

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The **MULTI DECK WEIGHBRIDGES** are an important product within Sasco's range of Truck Weighing solutions. Other products within Sasco's truck weighing range which offer a similar solution, include weigh-in-motion wimbridges, standard weighbridges with upgraded instrumentation to enable axle weighing, group axle weighers and weigh pads.

Under conditions of high volume and heavy truck loading, the MP-DI is the optimal solution for enabling highly accurate digital total weight trade weighing as well highly accurate axle weighing.

The MP-DI, when installed with Sasco ProWeigh+ software, provides for fully compliant axle weighing as well as an array of operational functionality including weighbridge automation, the total integration of weighing data generated with user IT systems and powerful cloud and networking data capabilities.



Product Overview

The MP-DI is a highly accurate trade approved Truck Weighing System providing total weight and axle weights.

Sasco typically achieves accuracy levels on both total weight and axle weights of 99.95% on the system, with a maximum total loading of up to 120 tons. Key elements of the system are:

- Complete digital instrumentation with all components being manufactured in Europe.
- The key instrumentation components are one DD1050 indicator and 16 x CPD digital load cells.
- A lower cost of option of a trade approved hybrid digital system comprising one DD1050 indicator and 16 x S500 load cells is also available.
- The total length of the weighbridge is 22 meters comprising 4 interlinked steel deck modules of 3m, 6m, 7m and 6m in length.
- Decks are manufactured from only the highest quality grade steel that can accommodate extreme axle loadings of up to 25 tons
- Mounting options are either pit mounted or mounted above the ground.
- Sasco ProWeigh + software is supplied as standard, which means the adding on an array of weighbridge automation options is easy.
- Sasco ProWeigh+ also has the functionality to facilitate the integration of weighing data to a range of ERP systems whether directly or via the Cloud,
- The set-up menu of Sasco Proweigh+ Fleet Manager Database, allows for the option of single tare weighing as opposed to double weighing of vehicles.
- The set-up menu of Sasco Proweigh+ Fleet also allows for the option of SOLAS Weighing as well as total weight and axle weighing.
- Finally, there is the added option of fully unmanned operations whether on a stand-alone basis or as part of a Centralized Weighing Operations Control Centre configuration.

Indicator

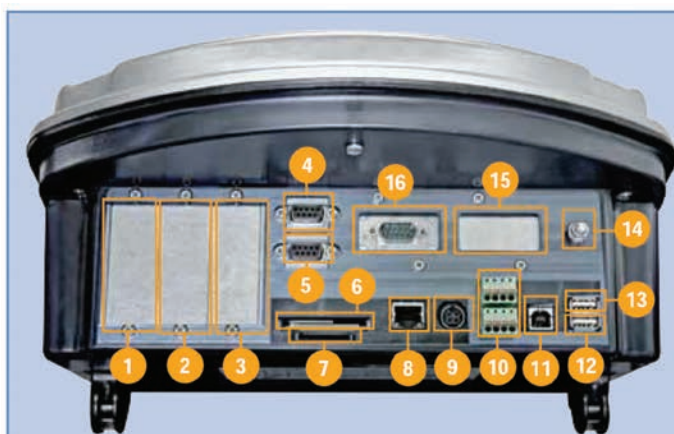
The indicator used on the MP-DI is the DD1050, which is manufactured by Bilanciai in Italy. The reasons for deciding to specify the MP-DI with this indicator are as follows:

- Judged on reliability and functionality, Bilanciai is regarded as the leading manufacturer of weighing indicators globally.
- The DD1050 has the capability to directly manage data from all 16 load cells, thereby providing total weights for each of the 4 decks that make up the multi deck. This means that only one indicator is required. The effect of this is, lower maintenance and more accurate calibrations.



- The DD1050 stores all the load cell calibrations, such that when load cells require replacing, the correct calibrations can be simply downloaded from the indicator to the relevant load cell. This reduces down time.

- The DD1050 offers an array of interfacing terminal options, can form part of a total facilities network, and can also on a standalone basis directly managing and controlling multiple hardware devices used in weighbridge automation.



- | | |
|----------|-------------------------------------------------------------------------------|
| 1-2-3 | Slots for optional cards |
| | - serial cards, |
| | - I/O card, |
| | - field bus card |
| | - weighing machine connection (up to 2) |
| 4-5 | 2 off RS232/422/485 serial ports for connecting printers, repeaters, PCs etc. |
| 6 | Expansion slot for memory card |
| 7 | SD card expansion slot |
| 8 | Ethernet 10/100 output |
| 9 | 12 VDC/4A power supply |
| 10 | 2 off 24 VAC/DC Input/Outputs |
| 11-12-13 | USB ports |
| 14 | Weighing machine 2 |
| 15 | Weighing machine 1 |

Load Cells

The MP-DI comes with the option of either CPD or S500 load cells. The S500 load cells are cheaper.

The accuracy of both the CPD and S500 load cells are both very high and both have stainless steel casing. However, the advantages of the more expensive CPD load cell over the S500 are:

- While both the CPD load cell and S500 IP68 rated, the CPD load cell has proven to be able to sustain being submerged for up to a month without compromising its operations.
- The continuing accuracy under conditions of extreme temperature changes, of CPD load cells, have been proven to be better particularly in environments of extreme heat.
- The CPD load cells come with inbuilt lightning protection in each load cell. This has proven invaluable when installations are in high lightning strike areas.
- The CPD load cells come complete with anti-rodent cabling. This has also proven to be invaluable were the products being weighed are prone to attracting rodents.



CPD LOAD CELL



Software and Data Integration

The MP-DI runs on Sasco ProWeigh + software and offers the functionality of seamless data integration, either directly or via the Sasco Cloud.

Configured in single weighing tare mode weighing the weighing sequence to be followed by the Weighbridge Operator is as follows:

FIRST ACTION:

Capture the registrations of the horse and trailer units, which can be automated via RFID, APNR cameras, or QR codes.

SECOND ACTION:


Weigh.

THIRD ACTION:

Select the vehicle configuration so as to determine the correct permissible weights. This can be automated if the vehicles are loaded on the ProWeigh Fleet Master database.

Compliant Total Weight and Axle Weighing Ticket

Once the weighing process is complete, print the weighing ticket. If ProWeigh is set up to integrate with the User's IT system or Sasco Cloud, all the relevant weighing information will also be immediately transmitted electronically to this data destination.

THIS DOCUMENTATION IS COMPLIANT WITH THE NATIONAL ROAD TRAFFIC AMENDMENT ACT OF 2008				
		WEIGHBRIDGE TICKET SLIP		
		Horse Registration	: ABC123GP	
		Weighbridge Name	: Sasco Demo Weighbridge 1	
		Company Name	: Sasco Customer Demo Company	
		Site Name	: My Test Location	
		Product	:	
TICKET NUMBER		WBT000068	TICKET DATE	2018/05/22 15:47:00
VEHICLE DETAILS				
Registration Number	ABC123GP	XYZ456GP		
Type	Horse	Trailer	****	
Operator	My Transport	My Transport	****	
Contact Person	****	****	****	
Insurance Provider	****	****	****	
Cover Type	****	****	****	
Policy Number	****	****	****	
TRADE WEIGHING DETAILS				
<u>First Weigh Details</u>		<u>Second Weigh Details</u>		<u>Weigh Calculations</u>
Weight (kg)	15 430	Weight (kg)	21 500	NETT Weight (kg) 6 070
Date Time	2018/05/22 15:42:51	Date Time	2018/05/22 15:46:59	Product NETT (kg) 6 070
Operator	sa	Operator	sa	Total Difference (kg) 6 070
				Total Cost R0,00
LOADING DETAILS				
Axle Groups	Actual kg	Permissible kg	Difference kg	
Group 1	5 100	7 700	(2 600)	
Group 2	10 200	17 600	(7 400)	
Group 3	6 750	7 000	(250)	
TOTALS	22 050 kg	32 300 kg	(10 250)kg	
CONSIGNEE DETAILS				
Consignee Code		Address		
Consignee Name				
Document Number	SAS0000000002			
Document Type	Sales	Contact Name	****	
Document Weight	0	Contact Number	****	
CONSIGNOR DETAILS				
Consignor Name		Contact Name ****		
Address	Sasco Customer Demo Company 1 Test Street **** JHB	Contact Number 0117654321		

Compliant Solas Weighing Ticket Format

Example of a typical paper form or electronic form SOLAS weighing ticket generated should this weighing option be selected.

SOLAS COMPLIANT WEIGHING TICKET							
	WEIGHBRIDGE NAME		Sasco P&W Pomona				
	DATE AND TIME:		2018/07/11 8:00:00				
	SANAS CERTIFICATE:		1121990				
	CALIBRATION CERTIFICATE:		1121990				
		CALIBRATION DATE:	2019/01/19				
<table border="1"> <tr> <td>TICKET NUMBER</td> <td>PM00002473</td> <td>TICKET DATE</td> <td>2018/07/11 8:00:00</td> </tr> </table>				TICKET NUMBER	PM00002473	TICKET DATE	2018/07/11 8:00:00
TICKET NUMBER	PM00002473	TICKET DATE	2018/07/11 8:00:00				
TRANSPORTER INFORMATION							
Horse Registration:	TESTGP	Driver Name:					
Trailer 1 Registration:	TRAILER01GP	Captured by:	sa				
Trailer 2 Registration:							
Transporter Name:	Test Company						
CARGO INFORMATION							
Customer Name:	Test Company						
Container Number:	MSKU2666542						
ISO Type:	ST20						
Load Type:							
Container Tare:	10 000	kg					
Seal Number:	S12346						
Empty Vehicle Weight:	14 000	kg					
Gross Vehicle Weight:	80	kg					
Gross Cargo Weight:	-13 920	kg					
Net Cargo Weight:	-23 920	kg					

COMPLETED BY	_____	DRIVER	_____
DATE	_____	DATE	_____

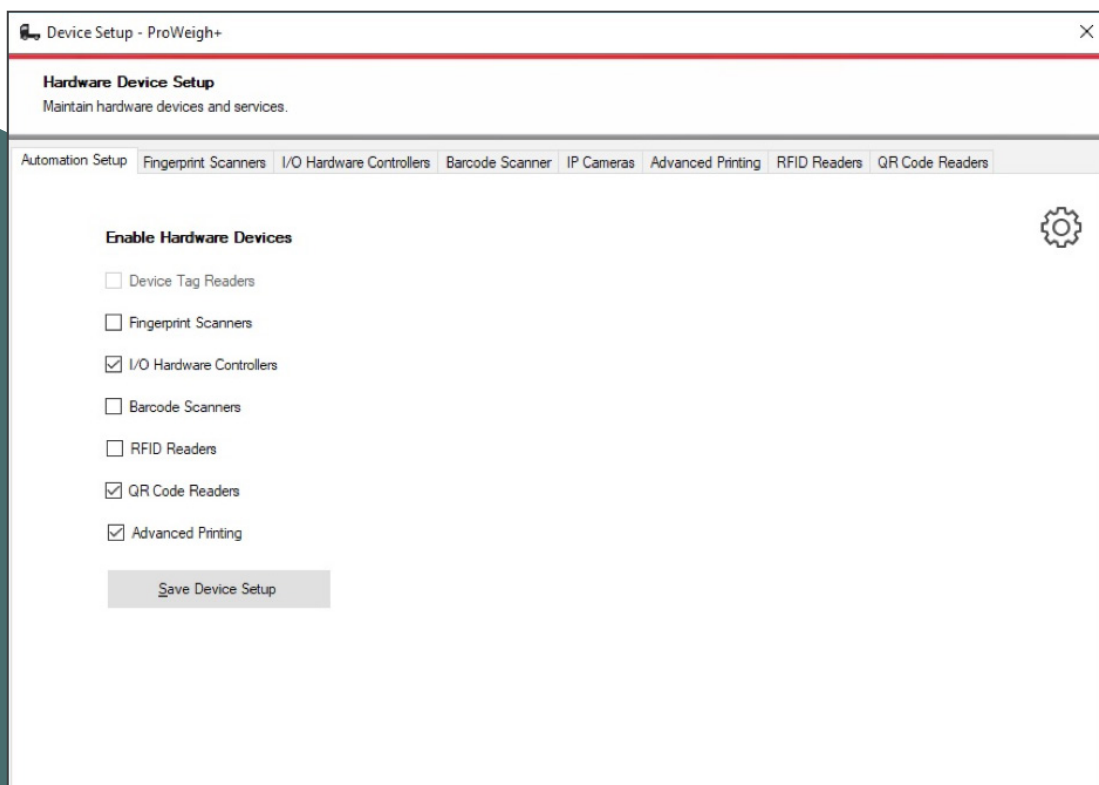
This document also confirms that the minimum mass of the drive axles have been checked and that the mass on the steering axle has been checked for both over and under loading.

Add-on Hardware Options

ProWeigh + together with the DD1050 can accommodate the add-on of the following hardware devices:

- Robot
- Booms
- Cameras
- Electronic Display Board
- Bar Code Reader
- QR Code Reader
- RFID Reader
- Internet Communications Card

Additional automation hardware can be added without incurring development costs, simply through a standard menu driven activation process.



Application Example

Company A is a coal group with three coal mines effectively on one site. There are three separate entrances and departure gates. They have approximately 200 inter link trucks enter each site per day to collect coal. No PBS or other odd truck configurations enters the site.

All trucks are loaded to the maximum permissible weights. Departing trucks need to know not just their total weights but also axle weights.

Conditions at the mine are extreme with very hot conditions in summer and a great deal of lightning. Summer storms are also significant, and flooding takes place.

Company A wants to replace all existing out bound weighbridges so as to provide axle weighing and add manned weighbridge automation devices on the entrance and exits to all three sites. The existing standard in bound weighbridges are to remain. All weighing data must directly interface with the groups ERP system.

The MP-DI combined with ProWeigh+ will be the optimal solution and would be configured as follows:

- Three MP-DI weighbridges, with CPD load cells will be installed above ground at the three exit gates.
- ProWeigh+ will be loaded on the PC's at the weighing stations at each of these sites.
- The automation and ERP interfacing functionality of ProWeigh + will be activated.
- Booms, cameras and robots and each gate will be controlled via ProWeigh+ via the DD1050 for the new MP-DI installations, and directly to the automation devices installed at the existing inbound weighbridges.



INTERLINK TRUCK WITH COAL

Technical Specifications

	CPD Load Cells	S 500 Load Cells
Total Accuracy	+/- 99.95%	+/- 99.95%
Axle Weighing Accuracy	+/- 99.95%	+/- 99.95%
Installation	Above ground or pit	Above ground or pit
Deck Width	3m	3m
Deck Length	22m comprising 4 modules	22m comprising 4 modules
Number of Modules	Four - 3m, 6m, 7m, 6m	Four - 3m, 6m, 7m, 6m
Indicator	One - DD1050	One - DD1050
Indicator IP Rating	IP 48	IP 48
Load Cells	16 - CPD	16 - S500
Load Cell IP Rating	IP68	IP68
Dlink Required	No	Yes
Maximum Total Weigh	120 tons	120 tons
Maximum Axle Weigh	25 tons	25 tons
Reverse Calibration	Yes	Yes
Temperature Compensation	Yes	Yes
Maximum Number of Axle Groups	Four	Four
Total Weight Generated	Yes	Yes
Axle Weights Generated	Yes	Yes
RTA Compliant Ticket	Yes	Yes
SOLAS Weighing	Yes	Yes
Double or Single Weighing	Yes	Yes
Manned or Unmanned	Manned	Manned
PC Required	Yes	Yes
Option of Automation	Yes	Yes
Option of Unmanned	Yes	Yes
Option of Centralization	Yes	Yes
Direct IT Systems Interfacing Possible	Yes	Yes
Cloud Interfacing Possible	Yes	Yes
Pre- Loading of Fleet Possible	Yes	Yes
Deck Warranty	6 Years	6 Years
Instrumentation Warranty	12 months	12 months
Trade Approval	Yes	Yes

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