DANAK
PROD Reg. nr 7026

FORCE Certification

EU Type Examination Certificate

No. 0200-MID-03173

Load weighing system

AUTOMATIC CATCHWEIGHING INSTRUMENT

Issued by **FORCE Certification**
EU - Notified Body No. 0200

In accordance with the requirements for the automatic weighing instruments in Directive 2014/32/EU of the European Parliament and Council of February 26, 2014 on Measuring Instruments (MID).

Issued to **RAM SMAG Lifting Technologies Pte. Ltd.**
160A GUL Circle
Singapore 629635
SINGAPORE

In respect of Automatic catchweighing instrument designated 'Load weighing system' with variants of modules of load receptor and load cells.
Accuracy class Y(b)
Maximum capacity: 50t
Verification scale interval: e = 0.5t
Variants of modules and conditions for the composition of the modules are set out in the annex.

The conformity with the essential requirements in Annex 1 and the specific requirements in Annex VIII (MI-006), chapter I & II of the Directive 2014/32/EU is met by the application of OIML R51-1:2006, OIML D11:2013 section 12 (table 26 to 29) with severity level 3, WELMEC Guide 7.2:2015, and WELMEC Guide 8.16-1:2013.

The principal characteristics and approval conditions are set out in the descriptive annex to this certificate.

The annex comprises 12 pages.

Issued on **2018-01-18**
Valid until **2028-01-18**

Signatory: J. Hovgård

FORCE Certification references:
Task no.: 116-33818 and ID no.: 0200-MID-03173

Descriptive annex

Contents

1. Name and type of instrument and modules

The automatic catchweigher is a weighing system intended for weighing containers for ship transport. The system is designated “Load weighing system” and is intended for dynamic weighing and manufactured by RAM SMAG Lifting Technologies Pte Ltd.

2. Description of the construction and function

2.1 Construction

The “Load weighing system” is based on a PLC with analogue input modules and 4 compression load cells. The system is built into a spreader intended for container lifting and moving. The spreader is mounted in a crane.

The instrument is software wise of Type P and Risk Class B with extension L according to WELMEC Guide 7.2:2011.

2.1.1 Indication

All communication between the catchweigher and the operator is performed via a touch screen connected to the PLC.

2.1.2 Electronics

The “Load weighing system” uses a Siemens as weighing module. The PLC is equipped with 4 analogue input modules for interfacing to the load cells. This PLC handles all weighing functions and is connected via a serial communication interface to the operator interface.

The catchweigher/catchweigher is power supplied from one phase 100 to 240 VAC, 50/60 Hz.

2.1.3 Load cell

Set out in Section 3.3.

2.1.4 Load receptor

Set out in Section 3.2.

2.1.5 Interfaces and peripheral equipment

Set out in Section 4.

2.2 Function

The functions provided are detailed below.

2.2.1 Functions and devices

The automatic weighing instrument has the following permitted functions and devices that are subject to the Measuring Instrument Directive:

- Power up test
- Initial zero setting device (max. 20 % of Max)
- Automatic zero setting device (max 4 % of Max)
- Event logger
- Check number device (CRC-4 calculation over legal parameters)
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2.2.2 Software identification

The software consists of weighing software and display software. The format of the software versions is on the format x.y.
X indicates the version number for the software in the PLC.
Y indicates the version number of the software in the HMI
The software version is shown in the lower right corner on the main menu.

The released version of the software is 1.1.

3. Technical data

3.1 Load weighing system automatic catchweigher

Type:	Load weighing system
Weighing mode:	Dynamic
Accuracy class:	Y(b)
Weighing range:	single-interval
Maximum capacity (Max):	50 t
Minimum capacity (Min):	10 × e
Verification scale interval (e =):	0.5 t
Number of Verification Scale Intervals (n):	100
Extra warm up time:	2 minutes
Maximum time between automatic zero setting:	483 minutes
Temperature range:	-25 °C to +70 °C
Electromagnetic class:	E2
Humidity:	Non-condensing
Power requirements:	100 to 240 VAC, 50/60 Hz
Peripheral interface:	Set out in Section 4

3.2 Load receptor

The weighing load receptor is a spreader carrying one or two containers and equipped with four load cells.

3.3 Load cell

The Load weighing system uses a Brosa digital load cell type 0120, maximum capacity 20t, class D with n≤230.
Other certified load cells with the same or better specifications and fulfilling the Compatibility of Modules calculations of OIML R76-1.2006 annex F may be used.

3.4 Documents

The documents filed at DELTA (reference No. 116-33818) are valid for the weighing instruments described here.

4. Interfaces

The Load weighing system has the following communication interfaces.

- Ethernet (Profinet and optional Profibus)

The interface is protective and does not have to be secured.

5. Approval conditions

The Load weighing system is approved for fixed installation in a container transport system.

6. Special conditions for verification

The Load weighing system has not been certified for non-automatic weighing.

7. Securing and location of seals and verification marks

7.1 Securing and sealing

Seals shall bear the verification mark of a notified body according to ANNEX F of the Directive 2014/32/EU or alternative mark of the manufacturer according to ANNEX D of the Directive 2014/32/EU.

7.1.1 Mechanical sealing

The identification plate shall be secured against removal with a brittle plastic sticker.

The serial numbers of the load-cells are shown on the main menu screen of the Load weighing system and a change of these numbers will affect the TAC (traceable access counter).
A label with the TAC number shall be placed on or near the identification plate of the system.

The two parts of the electronic box and the HMI box are sealed with a brittle plastic tape.

7.2 Verification marks

A sticker with verification marks is to be placed on or near the identification plate of the instrument.

8. Location of CE mark of conformity and inscriptions

8.1 Identification plate

All inscriptions for the instrument shall be placed on the identification plate, which is to be placed on a visible place on the measuring instrument.

8.1.1 CE mark

The CE mark of conformity and the supplementary metrology marking consisting of the capital letter 'M' and the last two digits of the year of its affixing, surrounded by a rectangle, shall be located on the identification plate.

8.1.2 Markings on display

The following markings are shown with a scrolling text on the display,

- Max, Min, e = and accuracy class

8.1.3 Markings on inscription plate

The identification plate shall at least bear the following inscriptions:

- Manufacturer's trademark and / or name
- Postal address of manufacturer.
- Type designation
- Serial number
- Max, Min, e = and accuracy class
- Temperature range
- Electromagnetic class: E2
- Humidity: Non-condensing
- Supply voltage
- Check number
- Type examination certificate number

9. Pictures

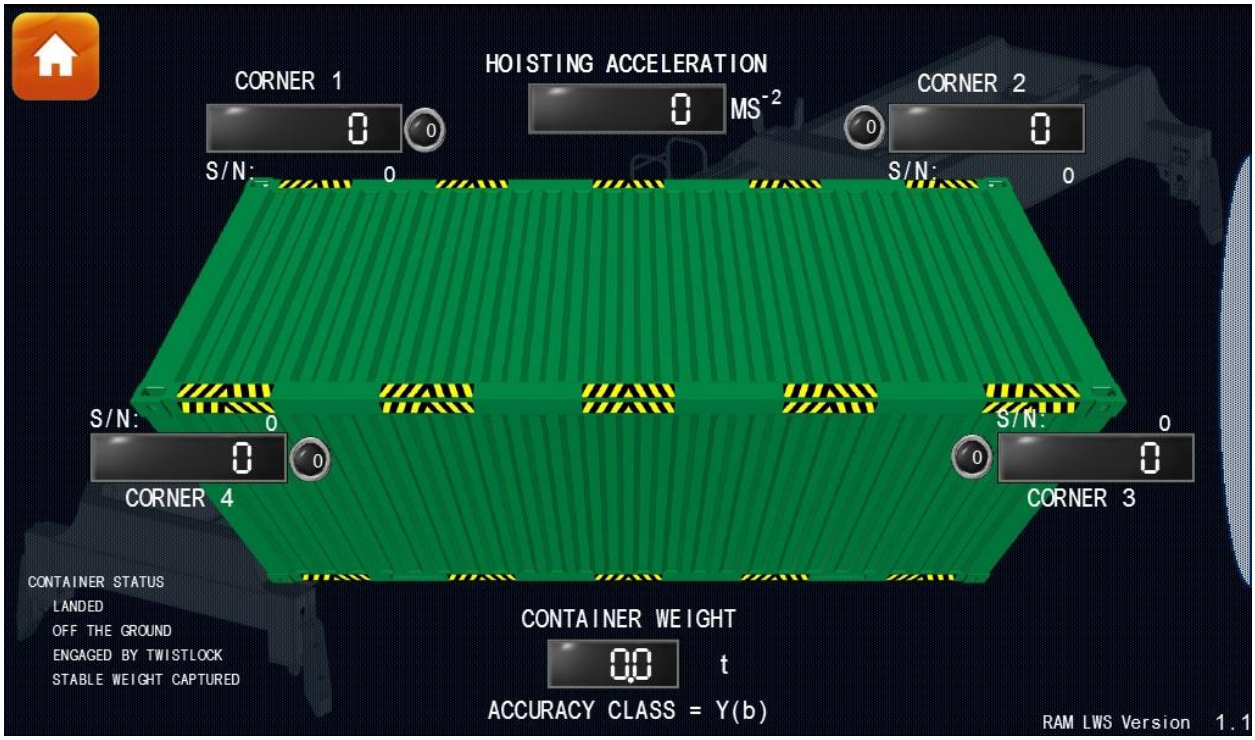

Figure 1 Main screen menu of Load weighing system

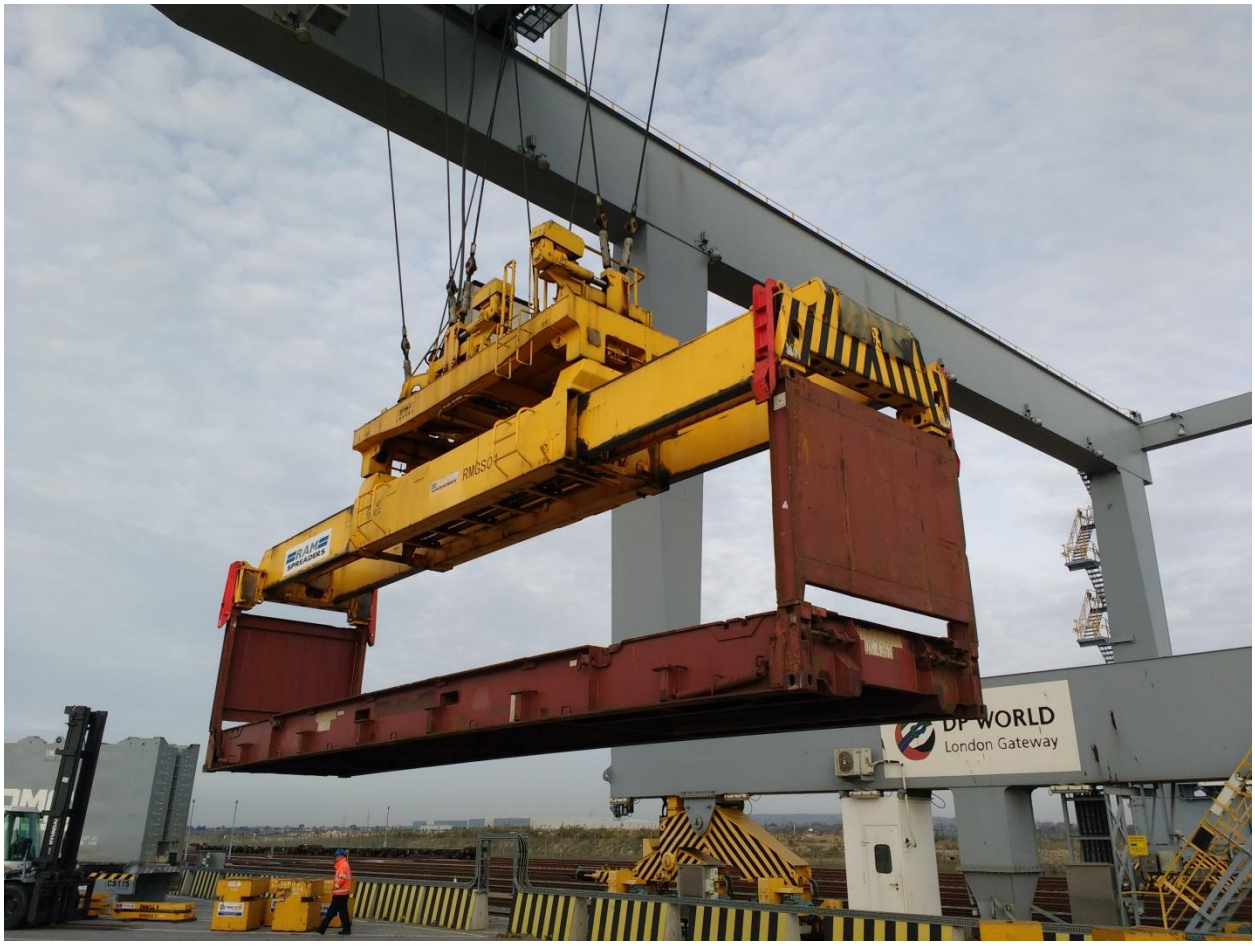

Figure 2 Spreader system for lifting container

Figure 3 Electronic box mounted inside spreader.

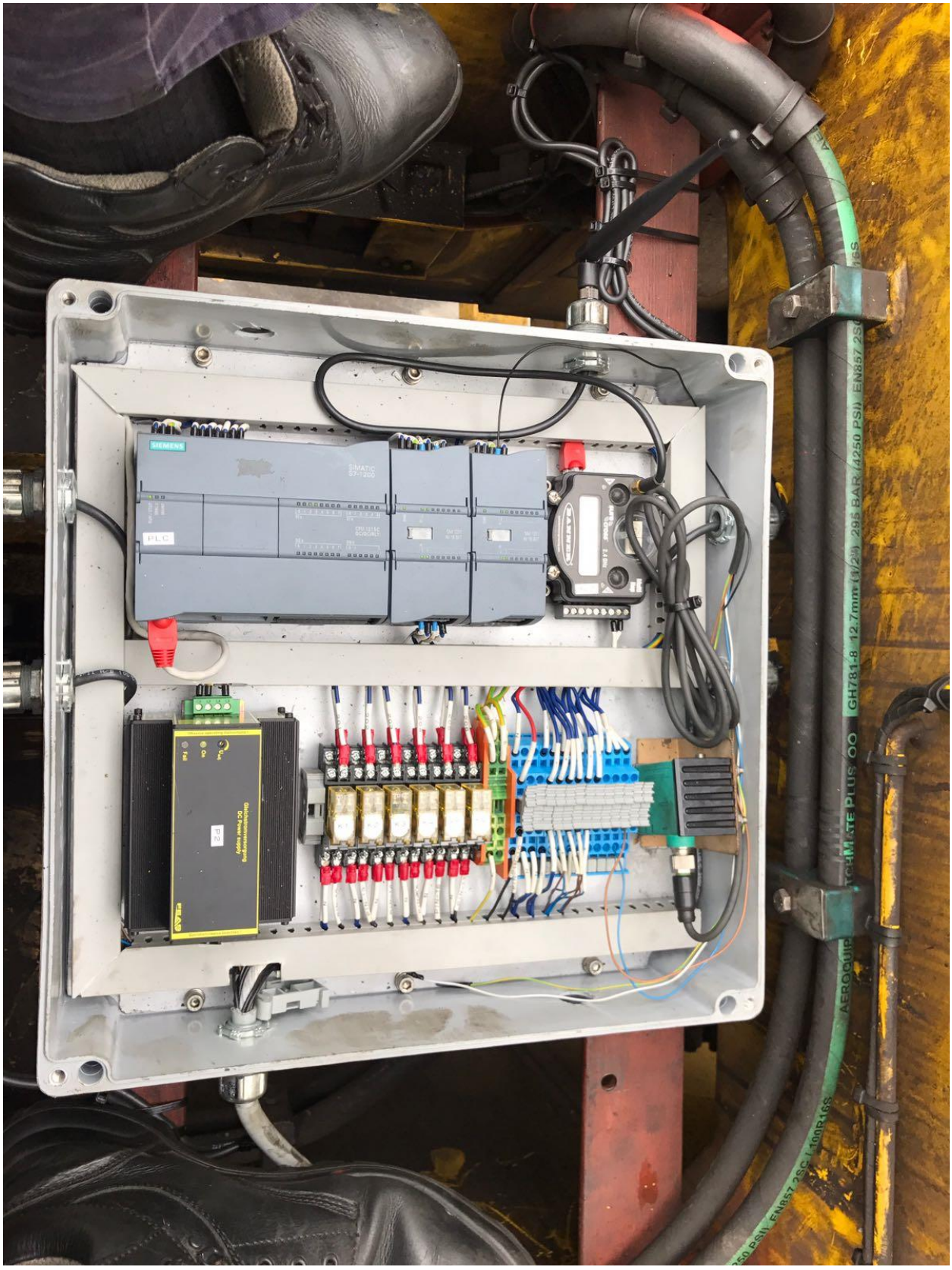

Figure 4 Electronics of Load weighing system

Figure 5 Load cell mounted inside spreader

Figure 6 Brittle plastic tape sealing upper and lower part of electronic box.