

# Electronic catchweighing instrument – Loadtronic 3

Issued to

**Aanderaa Data Instruments AS**

PO Box 103 Midtun, NO-5828 Bergen, Norway

Electronic automatic catchweighing instrument – Loadtronic 3 is fulfilling module B (Annex II) of directive 2014/32/EU on measuring instruments (MID), implemented in Swedish law by SWEDAC (The Swedish Board for Accreditation and Conformity Assessment) through STAFS 2016:1 The Measuring Instruments Regulations and STAFS 2016:7 The Regulations and Guidelines concerning Automatic weighing Instruments. Rise Certification Rule SPCR 302 has been applied.

#### Applicable essential requirements of directive 2014/32/EU

- Annex I, Essential requirements
- Annex VIII (MI-006), Automatic weighing Instruments

#### Harmonised standards and normative documents used

OIML R51, edition 2006, Automatic catchweighing Instruments

#### Further applied documents

- WELMEC 2.6, Guide for the testing of automatic catchweighing instruments (8<sup>th</sup> draft October 2007)
- WELMEC 7.2, Software Guide (Issue 1)

#### Manufacturing site

Norautron Suzhou Co., Ltd, PR China

#### Rated operating conditions

Measurand:	Weight inbucket/shovel		
Measurement range:	10e-200e	Electromagnetic environment class:	E3
Accuracy class:	Y(b)	Climatic environment:	-25 to +50 °C

Originally issued: 31 January 2008

Expiry date: 31 January 2028

This certificate replaces earlier issues. This issue 6 is due to adding of pressure sensor and angle sensor, see clause 1.2.

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8P00270



The instruments / measuring systems must correspond with the following specifications:

## 1. Design of the instrument

### 1.1 Construction

The weighing instrument consists of two pressure sensors, measuring the forces applied to the lifting arm system, indicating unit with control electronics. Furthermore there are three sensors in the system, two clinometers (one indicates the position of the lifting arms and one indicates the acceleration of the machine) and one position sensor (to signal when the lifting tool is retracted to weighing position).

### 1.2 Sensor

The weighing is performed when the bucket or other lifting equipment is raised in weighing position and when the bucket is used it is raised in fully retracted position. The weighing is performed dynamically.

#### Pressure sensor

Type 8253.84.23XX.XX.17.XX

Capacity 40 MPa (400 bar)

Manufacturer of sensor Trafag AG, Switzerland

Type 8254.84.23XX.XX.17.XX

Capacity 40 MPa (400 bar)

Manufacturer of sensor Trafag AG, Switzerland

Type MBS 1250

Capacity 40 MPa (400 bar)

Manufacturer of sensor Danfoss A/S, Denmark

#### Other sensors

Type

- acceleration sensor	SCA121T-D03, SCA121T-D10	DAS-90-A-03
- angle sensor	SCA121T-D03, SCA121T-D10,	DAS-90-A-03
Manufacturer of sensor	VTI Technologies, Finland	Level Developments LTd UK

### 1.3 Measurement value processing

#### Hardware

The weighing instrument consists of two pressure sensors, measuring the forces applied to the lifting arm system, indicating unit with control electronics. Furthermore there are three sensors in the system, two clinometers (one indicates the position of the lifting arms and one indicates the acceleration of the machine) and one position sensor (to signal when the lifting tool is retracted to weighing position).

#### Software

The validation of software was based on the essential requirements given in MID and WELMEC Guide 7.2. A report with number MTmP702831-02, dated 2007-12-13 was issued and is held by RISE. The software identification number, which is 1.xx (the xx is not concerning metrological functions) is shown on the display. The number of lifting tools should be evident from the software programme.

### 1.4 Indication of the measurement results

The control electronic unit may use different displays and interfaces. The control unit consists of a digital data processing unit.

## 1.5 Optional equipment and functions subject to MID requirements

- Manual zero-point setting every 2 hours
- dynamic setting function (configuration and calibration), only adjustable during set up

## 1.6 Technical documentation

The operating manual includes technical specifications and for example how to get access to the checksum. Dynamic settings is protected by a hardware switch.

## 1.7 Integrated equipment and functions not subject to MID

See operating manual.

## 2. Technical data

### 2.1 Rated operating conditions

#### Measurand

Any material within the measuring range, weight expressed in kg.

#### Measurement range

Maximum capacity,  
Minimum capacity,  
Verification scale interval, class Y(b)  
Number of verification scale intervals, class Y(b),

Max  $\leq e \cdot n$   
Min  $\geq 10e$   
 $e \geq 20 \text{ kg}$   
 $100 \leq n \leq 200$

#### Accuracy

Y(b)

#### Environments classes / influence quantities

Climatic: -25 to +50°C  
Electromagnetic: class E3

#### Durability period under rated operating conditions estimated by the manufacturer

Durability period estimated to be 36 months.

### 2.2 Other operating conditions

Not applicable.

## 3. Interfaces and compatibility conditions

The instrument may use the following protective interfaces for data communication:

- Printer (RS232, USB),
- USB interface
- Reverse signal
- RS232 (cable/modem)
- RS485 (J1708)
- CAN (J1939) for external communication

## 4. Requirements on production, putting into use and utilisation

### 4.1 Requirements on production

No special requirements identified.

### 4.2 Requirements on putting into use

No special requirements.

### 4.3 Requirements for consistent utilisations

No special requirements identified.

**5. Control of the measuring tasks of the instrument in use**

No special measuring tasks are identified.

**6. Security measures**

**6.1 Sealing**

**Interfaces**

No sealing of interfaces is necessary

**Indicator**

No sealing of indicator is necessary

The switch, located in the indicator is found by opening the lower side of the main unit, is used to prevent unintentional changes, which destroys the verification of the system. It is not sealed. Every event which destroys the verification, is recorded in the event recorder.

Main unit is not sealed. The main card serial number is recorded in event recorder and in verification documents.

Note: The program checksum shall be checked and noted.

**Load cells / pressure sensors**

The load cells/pressure sensors shall have a clearly visible serial number.

The serial number shall be marked on the descriptive plate

**Descriptive plate**

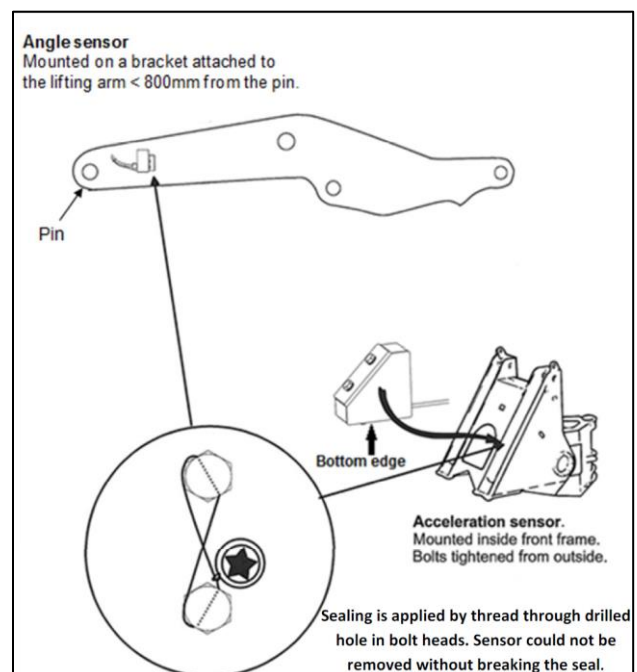
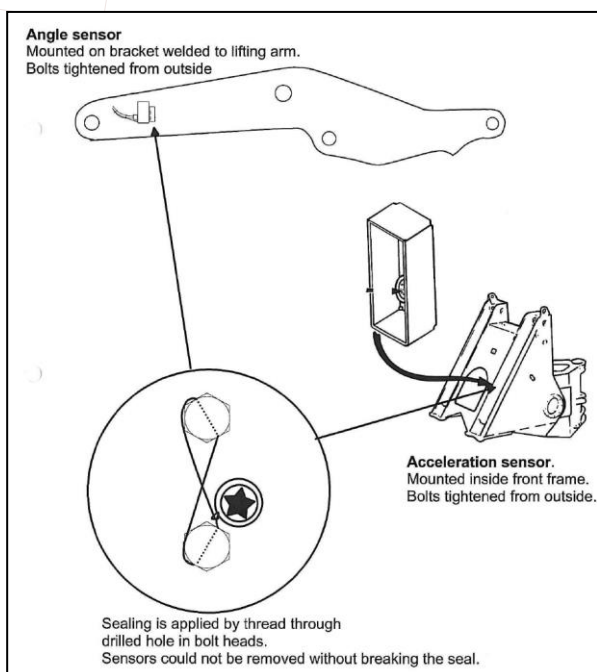
The descriptive plate (plates) shall be secured with sealing stickers unless the plate cannot be removed without being destroyed.

**Bucket/shovel**

The shovel shall be clearly and permanently marked with its number.

**Sensors**

The acceleration sensors and the angular sensors shall be sealed by wire.



## 6.2 Data logger

The instrument has a Data storage device.

## 7. Labelling and inscriptions

### 7.1 Information to be borne by the instrument

The descriptive plate mounted on the instrument shall contain the following information:

name or identification mark of the manufacturer  
 serial number and type designation  
 number of EC type examination certificate  
 accuracy class  
 verification scale interval, e  
 checksum  
 maximum capacity, Max  
 minimum capacity, Min  
 temperature range  
 electrical supply

If different lifting tools with different Max capacity are used it should be evident from the descriptive plate.

### 7.2 Conformity marking in accordance to MID article 21

The instrument shall be marked in accordance to MID article 21 which e.g. describes the CE-marking together with M, year of marking and the notified body number.

### 7.3 Further inscriptions, if necessary

No further inscriptions considered necessary.

## 8. Testing and examination

All the plans, schematic diagrams and documentations are recorded under reference files MTm P702831, 3P00832, 8P00270-01-1.

