



**Australian Government**

**Department of Industry,  
Science and Resources**

**National  
Measurement  
Institute**

36 Bradfield Road, West Lindfield NSW 2070

**Certificate of Approval  
NMI 6/20A/16**

Issued by the Chief Metrologist under Regulation 60  
of the  
*National Measurement Regulations 1999*

This is to certify that an approval for use for trade has been granted in respect of the instruments herein described.

Diverseco Model Binweigh LFT RL Wheeled Loader Weighing Instrument

submitted by           Diverseco Pty Ltd  
                                  T/A Accuweigh  
                                  38 Greenhill Road  
                                  Wayville   SA   5034

**NOTE:** This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 51, *Automatic Catchweighing Instruments*, dated August 2009.

This approval is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

**DOCUMENT HISTORY**

<b>Rev</b>	<b>Reason/Details</b>	<b>Date</b>
0	Pattern & variant 1 approved – certificate issued	02/06/26

## CONDITIONS OF APPROVAL

### General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/20A/16' and only by persons authorised by the submittor.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0B.

This approval shall NOT be used in conjunction with General Certificate No 6B/0.

### Special Conditions of Approval

For this type of instrument, the ability to perform within the specified maximum permissible errors may be influenced by characteristics of the vehicle or lifting system to which it is fitted.

It is the responsibility of the submittor (Diverseco) to exercise control over any installation to ensure compliance with this approval and to ensure performance within the appropriate maximum permissible errors.

In the event of unsatisfactory performance this approval may be withdrawn.

Signed by a person authorised by the Chief Metrologist to exercise their powers under Regulation 60 of the *National Measurement Regulations 1999*.



**Phillip Mitchell**  
A/g Manager  
Policy and Regulatory Services

## TECHNICAL SCHEDULE No 6/20A/16

### 1. Description of Pattern approved on 02/06/26

A Diverseco (\*) model Binweigh LFT RL (rear lift) class Y(b) multi-interval automatic catchweighing instrument (Figure 1) with a verification scale interval ( $e_1$ ) of 2 kg up to 200 kg and a verification scale interval ( $e_2$ ) of 5 kg from 200 kg to 600 kg and with a minimum capacity of 20 kg.

Note (\*): May also be known as Accuweigh instruments of the same model.

The system is intended for the determination of the net weight of the contents of a waste bin picked up by (emptied into) a waste bin pick up vehicle, to which the instrument has been fitted. Thus each single weighing is the result of a gross (full) and a tare (empty) weighing of the waste bin. The system may also be suitable for other similar applications.

#### 1.1. Weighing Mechanism

The Diverseco model Binweigh LFT RL comprises a weighing module incorporating two DIGI SENS AG model SLC 1500kg load cells of 1500 kg maximum capacity (Figure 2a), mounted as part of the waste bin lifting mechanism at the rear of the vehicle (Figure 1). The system also includes one or two DIGI SENS AG Type BB-4W accelerometer sensors (Figure 3a), and additional ifm Electronic model IG5597 inductive sensor (or similar inductive sensor) to sense the location of the lifting mechanism and hence determine an appropriate 'weighing window' for the weight determination (Figure 3b).

#### 1.2 Weighing Calculator and Indicator

The load cells and other sensors are connected to a DIGI SENS model Eleiro weighing calculator, which utilises data from the sensors to determine the weight value (Figure 4).

#### 1.3 Power Supply

The system is powered from the power supply of the vehicle (10 – 40 V DC).

#### 1.4 Additional Information Regarding System

The following is additional information regarding operation of the system.

- The system utilises information from the DIGI SENS AG model Type BB-4W accelerometer(s), to compensate weight values for out-of-level conditions, and prevents weighing where the degree of tilt is beyond an acceptable range (or if other conditions occur such as excessively jerky lifting). The instrument is liable to be tilted to 5% in longitudinal and transverse directions.
- In some cases the sequence of operation of the lifting (and lowering) mechanism may affect the performance of the weighing operation. Where this is the case, a prominent notice to the operator detailing the correct sequence of operation shall be provided, unless alternative arrangements to ensure the correct sequence are in place.
- The system is intended to only weigh whilst the vehicle is not moving, and a sensor/interlock to ensure this is provided.
- Additional (optional) sensors may be provided (e.g. GPS location input or RFID tag reader).

- Additional outputs may be provided (e.g. to provide feedback to the operator regarding the status of the weighing operation).
- The system may incorporate memory devices for the storage of transaction data, or a printer may be provided for printout of a receipt.
- Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices.

### **1.5 Data Storage/Printout**

The system may incorporate memory devices for the storage of transaction data. For each weighing request weighing results together with identification including date and time are stored into the storage device. Alternatively (or in addition) a printer may be provided for printout of a receipt/transaction record.

Any printout shall comply with the requirements of NMI General Supplementary Certificate S1/0B.

### **1.6 Interfaces**

Instruments may be fitted with interfaces for the connection of auxiliary and/or peripheral devices. Any interfaces shall comply with clause 4.2.4 of document NMI R 51 (the basic intent of which is that it shall not be possible to alter weighing results via the interfaces).

Any measurement data output from the instrument or its interfaces shall only be used for trade in compliance with Supplementary Certificate No S1/0B (in particular in regard to the data and its format).

Indications other than the indications of measured mass (i.e. gross, tare, net, totals) displayed either on the instrument or on an auxiliary or peripheral device, are not for trade use.

Instruments may be fitted with RS-232/422/485 serial data interfaces, CAN, RFID, Ethernet and digital outputs.

### **1.7 Display Check**

A display check is initiated whenever power is applied.

### **1.8 Verification Provision**

Provision is made for the application of a verification mark.

### **1.9 Software**

The system uses POLYPHAG version 1.0.42 application software – later software versions in the series 1.0.xx are also approved, where 'xx' represents the identification of non-legally relevant software.

The software version and number can be seen on the display (Figure 6).

### **1.10 Sealing Provision**

Provision is made for the calibration to be sealed.

- The load cells and accelerometer shall be sealed by storing the identifiers of the load cells and accelerometer in the permanent memory of the ELEIRO indicator against replacement.

During startup and throughout operation, the identifiers stored in the memory of the ELEIRO indicator are compared with those stored in the load cells and BB accelerometer. If any discrepancy is detected, the ELEIRO indicator immediately switches to error mode and refuses to collect or evaluate any data.

- An adjustment switch is located in the Eleiro indicator, a bracket covering the adjustment switch with a securing screw (the lock LED is illuminated in red) shall be sealed using a destructible adhesive label as shown in Figure 5.

### 1.11 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Diverseco	#
Indication of accuracy class	Y(b)	
Pattern approval number for the instrument	NMI 6/20A/16	
Maximum capacity	<i>Max</i> .....	kg *
Minimum capacity	<i>Min</i> .....	kg *
Verification scale interval	<i>e</i> = .....	kg *
Serial number of the instrument	.....	

\* These markings shall also be shown near the display of the result if they are not already located there.

# Manufacturer may also be Accuweigh.

## 2. Description of Variant 1

approved on 02/06/26

The Diverseco model Binweigh LFT FL (front lift) automatic catchweighing instrument (Figure 7) similar to the pattern but fitted with two (2) DIGI SENS AG model SLC 7500kg load cells of 7500 kg maximum capacity (Figure 2b).

Instruments are approved for use in a multi-interval arrangement with a verification scale interval ( $e_1$ ) of 5 kg up to 600 kg and a verification scale interval ( $e_2$ ) of 10 kg from 600 kg to 2000 kg and with a minimum capacity of 50 kg.

## TEST PROCEDURE No 6/20A/16

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedure.

### **Maximum Permissible Errors**

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

Note:

Instruments provide two individual weighings and net payload in a loading cycle.

The maximum permissible errors only apply to each individual weighing displayed and/or printed and/or recorded.

### **Application of National Instrument Test Procedure (NITP) 6.8 for Waste Bin Pick-Ups**

#### **Loading cycle**

The loading cycle is applicable to all tests described in NITP 6.8 with the exception of zero setting and transaction record test and is comprised of two parts, a weighing on the way up and a weighing on the way down without emptying the load. The vehicle must remain stationary during the lifting and loading cycle.

The test load shall include a bin (of known weight) and standard weights or test objects (of known weight).

1. Set the instrument to zero.
2. Place the test load on the load receptor.
3. Lift the test load.
4. Lower the test load, and obtain indications up, down and net payload.
5. Record the indications up, down and net payload on the test report.
6. Repeat steps 2 to 5 four more times.

Note:

For the tilting test only repeat steps 2 to 5 twice more.

The instrument is to be tilted to the value of 5% in longitudinal and transverse directions.

#### **Additional Weighing Performance Test**

This test is mandatory and a standard loading cycle described in NITP 6.8 Clause 5.2 shall be followed. It can be completed in conjunction with the transaction record test described in NITP 6.8.

The test load shall include a bin (of known weight) and standard weights or test objects (of known weight). Note: The bin weight shall be equal to or greater than  $Min + 3e$ .

1. Set the instrument to zero.

2. Place a load of  $1/2$  *Max* on the load receptor and complete a loading cycle at the normal lifting speed.
3. Record the indications up and down and determine if they are within MPE.
4. Ensure the net indication is equal to the difference between the up and down indications.
5. Repeat steps 2 to 4 four more times.
6. Place a load of between  $1/2$  *Max* and *Max* on the load receptor and complete a loading cycle at the normal lifting speed. If practical the load shall include the MPE change points (i.e. 50 e and 200 e).
7. Record the indications up and down and determine if they are within MPE.
8. Ensure the net indication is equal to the difference between the up and down indications.
9. Repeat steps 6 to 8 four more times.
10. Determine whether the instrument has **PASSED** or **FAILED**.

FIGURE 6/20A/16 – 1



Rear-lift Configuration



Load Cell (Installed Behind the Load Receiver Frame)

Diverseco Model Binweigh LFT RL Wheeled Loader Weighing Instrument

FIGURE 6/20A/16 – 2



(a) DIGI SENS AG Model SLC 1500 Load Cell



(b) DIGI SENS AG Model SLC 7500 Load Cell

FIGURE 6/20A/16 – 3



(a) DIGI SENS AG Model Type BB Accelerometer Sensor



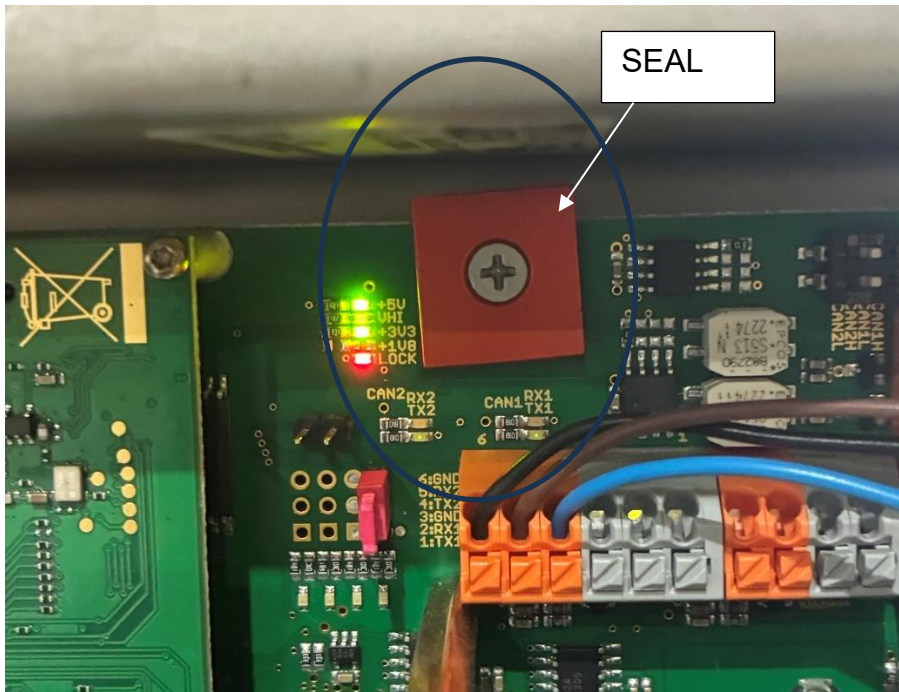
(b) Ifm Electronic Model IG5597 Inductive Sensor Located to Define Measuring Window

FIGURE 6/20A/16 – 4

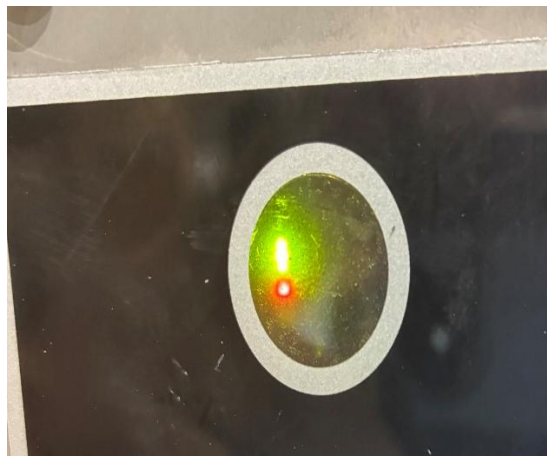


DIGI SENS Model Eleiro Weighing Indicator

FIGURE 6/20A/16 – 5



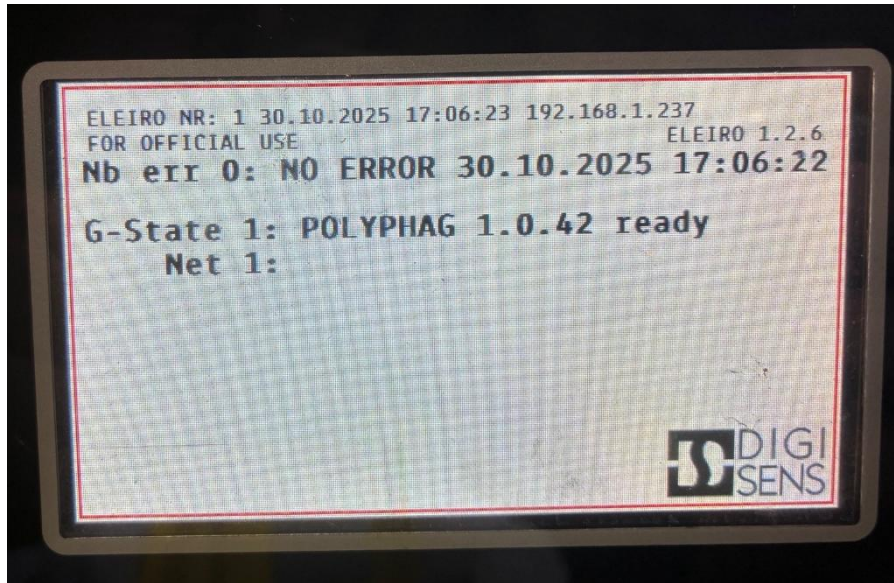
Sealing Method



Sealing Viewed Through Sealing Window

Sealing Arrangements

FIGURE 6/20A/16 – 6



Software Version

FIGURE 6/20A/16 – 7



Diverseco Model Binweigh LFT FL Wheeled Loader Weighing Instrument

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