



Australian Government

Department of Industry,
Science and Resources

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval
NMI 13/2/9

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.

Quantronix Model CubiScan 100-TLFT Non-automatic Weighing and Dimensional Measuring Instrument

submitted by Quantronix Inc
 955 West White Drive
 Ogden UT 84404
 USA.

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 documents NMI R 76, *Non-automatic weighing instruments, Parts 1 and 2*, dated October 2015 and NMI R 129, *Multi-dimensional Measuring Instruments*, dated July 2004.

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

Rev	Reason/Details	Date
0	Pattern approved – certificate issued	03/10/19
1	Change of address & removed review date – certificate issued	23/07/26

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 13/2/9' and only by persons authorised by the submitter.

It is the submitter'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.

Special Conditions of Approval:

Instruments are only approved for use for determination of the dimensions of a rectangular box and for the calculation of a 'dimensional weight' value of the item, for the purposes of determining freight or postal charges.

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



Phillip Mitchell
Acting Manager
Policy and Regulatory Services

TECHNICAL SCHEDULE No 13/2/9

1. Description of Pattern

approved on 03/10/2019

A Quantronix model CubiScan 100-TLFT non-automatic weighing and dimensional measuring instrument (Figure 1) which is approved for use to weigh and to measure the linear dimensions of certain objects while stationary.

1.1 Details

The pattern is approved for use as a class  non-automatic weighing instrument with a maximum capacity of 50 kg and with a verification scale interval (e) of 0.02 kg. The minimum capacity is 0.4 kg.

The pattern is also approved for use for the determination of the linear dimensions of objects having maximum dimensions (i.e. length × width × height) of 60 × 60 × 120 cm and minimum dimensions of 5 × 5 × 5 cm, with a scale interval (d) of 0.5 cm.

The pattern is approved for use in measuring the linear dimensions of non-sound absorbing rectangular box-shaped objects (cuboidal, rectangular parallelepiped – #) only; the dimensions determined may also be used for the calculation of a 'dimensional weight' value (*) of the item (refer to the Special Condition of Approval).

- (#) A rectangular box (rectangular parallelepiped) is a polyhedron having six faces that are parallel in pairs; each face is a parallelogram and adjacent edges are perpendicular.
- (*) A 'dimensional weight' value is a calculated value deemed to be a weight value obtained by applying a conversion factor to the object's volume as calculated from the measured dimensions.

1.2 Weighing System

The pattern comprises a weighing platform made of forged and machined aluminium and which is fitted with a single point type load cell. The load receptor has maximum nominal dimensions of 61 cm x 61 cm. It uses a Group Four Transducers model SP63-100kg-C3 single point digital load cell of 100 kg maximum capacity mounted as shown in Figure 2.

1.3 Dimensioning System

Three ultrasonic transducers are mounted on the platform in the length, width and height directions.

The panels which bound the two rear sides of the weighing platform are used to locate the object to be measured. The dimensional and weight measurements are displayed on the integral indicator.

1.4 Control Panel and Indicator

The control panel is used to initiate a measurement. The zero light indicates that the instrument is ready to be used.

The indicator displays the weight in kg, the length, width and height in cm, as well as the conversion factor and 'dimensional weight'.

1.5 Zero

A zero-tracking device may be fitted.

The instrument has a semi-automatic zero-setting device with a nominal range of not more than 4% of the maximum capacity of the instrument.

1.6 Operation

The following procedure is used to determine the weight and ('deemed weight') of an object.

- (i) Ensure that the weighing platform is empty and the zero indication is lit. Press the zero button if the zero light is not lit.
- (ii) Place the object on the platform and slide it against the back corner until it is in contact with both rear side panels.
- (iii) Press the 'MEASUREMENT' key to take the measurement. The weight, length, width, height, conversion factor and 'deemed weight' (DW ... kg) are displayed on the integral indicator. 'Deemed weight' is determined by means of a conversion factor applied to the volume calculated from the three dimensions.

1.7 Power Supply

The instrument operates from a 12 V AC/DC mains adaptor.

Note: The AC/DC mains adaptor supplied for the instrument was a CINCON ELECTRONICS mains adaptor model TRH50A120Y (12 V DC, 4.2 A) – the submitter should be consulted regarding the acceptability of alternative power supply units.

1.8 Display Check

A display check is initiated whenever power is applied.

1.9 Levelling

The Instrument is provided with adjustable feet and a level indicator.

The instrument is to be used in a level condition as indicated by the level indicator.

1.10 Interfaces

The indicator may be fitted with interfaces for the connection of auxiliary and/or peripheral devices. Any interfaces shall comply with clause 5.3.6 of document NMI R 76 and clause 10.4 of document NMI R 129 (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 NMI General 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, length, width, height, dimensional weight) displayed either on the indicator or on an auxiliary or peripheral device, are not for trade use.

Instruments may be fitted with RS-232, USB, and Ethernet interfaces.

1.11 Verification Provision

Provision is made for the application of a verification mark.

1.12 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Quantronix Inc
Model designation	CubiScan 100-TLFT
Serial number	
Year of manufacture	
Pattern approval mark	NMI 13/2/9
Indication of accuracy class	
Maximum capacity	<i>Max</i> kg #
Minimum capacity	<i>Min</i> kg #
Verification scale interval	<i>e</i> = kg #
Maximum object length	<i>Max</i> cm
Maximum object width	<i>Max</i> cm
Maximum object height	<i>Max</i> cm
Minimum object length	<i>Min</i> cm
Minimum object width	<i>Min</i> cm
Minimum object height	<i>Min</i> cm
Scale interval	<i>d</i> = cm

These markings are shown near the display of the result.

Instruments carry notices stating:

- TO BE USED FOR MEASURING RECTANGULAR BOXES ONLY, or similar wording.
- NOT FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

1.13 Sealing Provision

Provision is made for the calibration and configuration to be sealed by setting two calibration switches within the instrument to an OFF position, and then preventing access within the instrument housing.

It is possible to determine that the switch status is in the 'OFF' position as follows:

- Press the 'ABOUT' key and then the 'Version' key.
- If the switch is in the 'ON' position, the instrument will display 'Unsealed'. In this case the instrument should not be verified until the switch has been correctly located in the 'OFF' position.
- Otherwise the instrument will display 'Sealed' in which case the instrument may be verified.

Sealing to prevent access within the controller housing may be achieved by using destructible labels placed over the access holes to the calibration switches and opposite sides of a join in the controller housing as shown in Figure 3a.

Provision is made for the ultrasonic transducers to be sealed by means of destructible labels as shown in Figure 3b.

1.14 Software

The embedded software version is designated 5.xxxBxx, where 'xxx' refers to the identification of non-legally relevant software.

The software version and number can be seen by pressing the 'ABOUT' key and then the 'Version' key.

TEST PROCEDURE No 13/2/9

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

Maximum Permissible Errors

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

Dimensional Measuring System

Instruments shall be tested as follows:

- (a) Test objects shall be used, in the shape of rectangular boxes with known linear dimensions such that each axis (i.e. length $\times$ width $\times$ height) is tested for at least five dimensions between and including the minimum and maximum dimensions (approximately) specified on the instrument nameplate. Each test object shall be non-sound absorbing, rigid and with flat faces and well-defined edges. All adjacent faces and edges shall be perpendicular to each other. The dimensions shall be equal to $N \times d$ and the lengths shall be known to an uncertainty equal to or better than $\pm 1/5$ of the maximum permissible error, which is equal to the dimensional scale interval (d). N is a whole number.
- (b) Carry out at least three measurements for each test object, varying the orientation while ensuring the object is located against the two rear sides of the instrument. Each measurement shall be within the maximum permissible error.
- (c) Check that instruments are marked in accordance with clause **1.12 Descriptive Markings**.

FIGURE 13/2/9 – 1



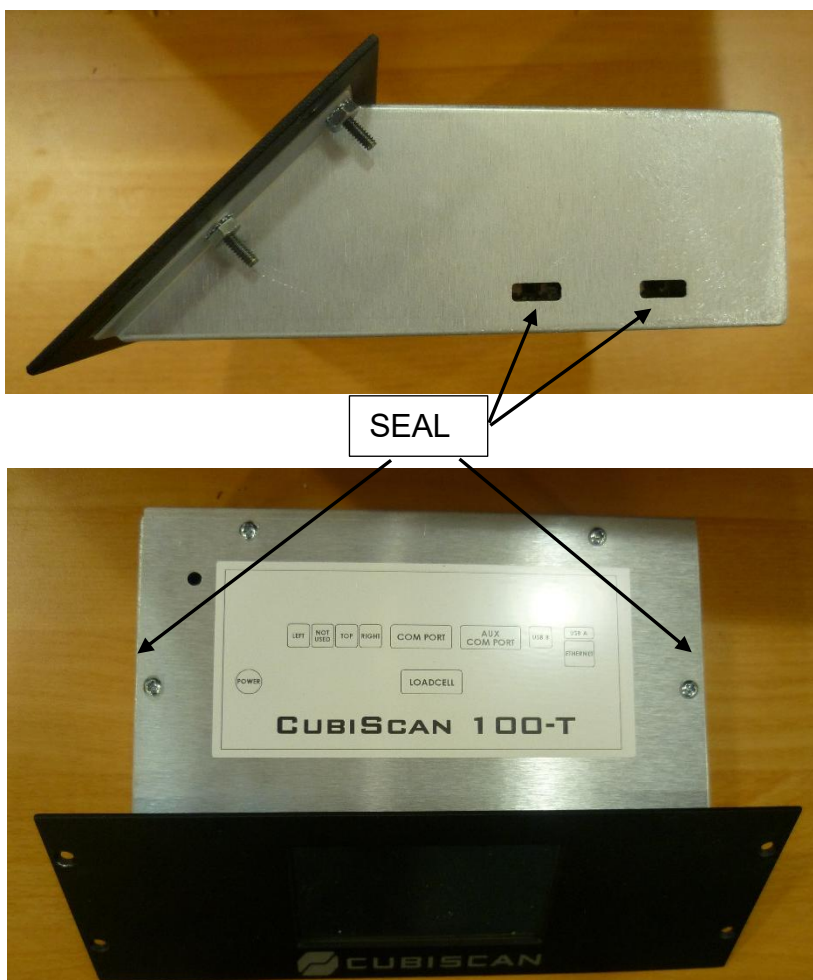
Quantronix Model CubiScan 100-TLFT Non-automatic Weighing and
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FIGURE 13/2/9 – 2

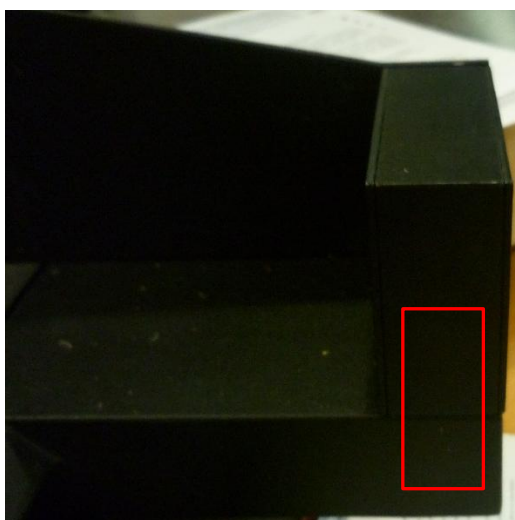


Showing Load Cell Mounting

FIGURE 13/2/9 – 3



(a) Typical Sealing of Controller Box



(b) Typical Sealing of Ultrasonic Transducers

~ End of Document ~