



Australian Government
National Measurement
Institute

Bradfield Road, West Lindfield NSW 2070

Cancellation
Certificate of Approval
No 13/1/2A

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

This is to certify that the approval for use for trade granted in respect of the
Quantronix Model CubiScan 200-XIR Dimensional Measuring Instrument

submitted by Quantronix Inc
 PO Box 929
 Farmington UTAH 84025-0929
 USA

has been cancelled in respect of new instruments as from 1 November 2010.

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

A handwritten signature in black ink, consisting of stylized cursive letters, positioned above a horizontal line.



Australian Government
**National Measurement
Institute**

12 Lyonpark Road, North Ryde NSW 2113

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Quantronix Model CubiScan 200-XIR Dimensional Measuring Instrument

submitted by Quantronix Inc
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 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 Certificate is issued upon completion of a review of approval NSC 13/1/2.

CONDITIONS OF APPROVAL

This approval expires in respect of new instruments on 1 March 2010, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NSC 13/1/2A' 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.

The National Measurement Institute reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

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

Special:

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

DESCRIPTIVE ADVICE

Pattern: provisionally approved 7 January 2004
approved 25 February 2005

- A Quantronix model CubiScan 200-XIR dimensional measuring instrument which is approved for use to measure the linear dimensions of certain objects while in motion.

Technical Schedule No 13/1/2A describes the pattern.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 13/1/2A dated 4 April 2005
Technical Schedule No 13/1/2A dated 4 April 2005 (incl. Test Procedure)
Figures 1 to 2 dated 4 April 2005

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

A handwritten signature in black ink, appearing to be 'J. H. T.', is located in the bottom right corner of the page.

TECHNICAL SCHEDULE No 13/1/2A

Pattern: Quantronix Model CubiScan 200-XIR Dimensional Measuring Instrument

Submittor: Quantronix Inc
PO Box 929
Farmington UTAH 84025-0929
USA

1. Description of Pattern

A Quantronix model CubiScan 200-XIR dimensional measuring instrument (Figure 1) which is approved for use to measure the linear dimensions of certain objects while in motion.

1.1 Details

The pattern is approved to measure rectangular box-shaped objects (parallelepiped (#), cuboidal) only having maximum dimensions (i.e. length x width x height) of 183 x 152 x 152 cm and minimum dimensions of 5 x 5 x 5 cm, with a scale interval (d) of 0.5 cm. A rectangular box (parallelepiped) is a polyhedron having six faces that are parallel in pairs; each face is a parallelogram and adjacent edges are perpendicular. The conveyor is set to operate at a single fixed speed between the maximum conveyor speed of 180 m/min and the minimum conveyor speed of 30 m/min.

The pattern comprises a belt-type conveyor, a dimensioning unit, and a combined control/indicator unit.

(#) A rectangular box (parallelepiped) is a polyhedron having six faces that are parallel in pairs; each face is a parallelogram and adjacent edges are perpendicular.

1.2 Operation

On power-up, a green light marked "ready" is illuminated when the unit is ready for operation. A red light marked "wait" is illuminated when the unit is measuring and in operation.

A measurement is made by passing the object through the frame on the moving conveyor and the dimensions are displayed when the measurement is complete. The measurement remains on the display until cleared by a successive measurement.

Whenever an error has been detected the indicator displays an error code, the green "ready" light is extinguished and below it a red light is illuminated. An error can only be cleared by rectifying the cause of the error. The instrument resets automatically.

The various error codes are listed in the CubiScan 200-XIR user's manual.

The instrument has a number of alarm functions which display error messages.

1.3 Dimensioning Frame

The dimensioning frame measures the dimensions of the object as it travels along the conveyor belt. A series of emitting and receiving photosensors in a vertical frame measures the height of the object, and an array of photosensors mounted at the sides of the conveyor detect the length and width of the object. The dimensioning frame has a measuring field of 152 x 152 mm (Figure 2).

1.4 Indicator

A dot matrix LED indicator is mounted above the horizontal section of the measuring frame (Figure 2) to display the measurement results, error messages and self-test/power-up information.

1.5 Controller

The controller mounted inside the horizontal section of the measuring frame includes a single board computer that uses CubiScan V4.2 software and processes signals from the photosensors for display on the indicator. The computer board also allows measurement results to be sent from the instrument to another source via RS 232 communications.

It controls the system operation, and provides the indications to display. The controller causes error messages to be displayed and also controls the speed of the conveyors.

Note: Two versions of the system electronics have been examined and these are functionally equivalent.

1.6 Descriptive Markings and Notices

(a) Instruments carry the following markings:

Manufacturer's mark, or name written in full	Quantronix, Inc
Model designation	CubiScan 200-XIR
Serial number
Year of manufacture
Pattern approval mark	NSC 13/1/2A
Maximum dimensions for each axis	<i>Max</i> cm
Minimum dimensions for each axis	<i>Min</i> cm
Maximum conveyor speed m/s
Minimum conveyor speed m/s
Scale interval	<i>d</i> = cm
Operating temperature range	0°C/40°C

(b) A notice stating "TO BE USED FOR RECTANGULAR BOX SHAPED OBJECTS ONLY", or similar wording, is displayed on the marking plate.

1.7 Verification/Certification Provision

Provision is made for the application of a verification/certification mark.

1.8 Sealing Provision

Provision is made for the calibration adjustments in the controller to be sealed by means of a destructible label across two adjacent sections of the horizontal section of the measuring frame as shown in Figure 2.

TEST PROCEDURE

Dimensional Measuring

The maximum permissible error at verification/certification, expressed in terms of scale interval (d) is:

$\pm 1.0d$ for linear dimensions from the minimum linear dimension to any value up to and including the maximum linear dimension of the instrument.

- Test objects shall be used, in the shape of rectangular boxes with known linear dimensions such that each axis (i.e. length x width x 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 opaque, 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 Nd and known to an uncertainty equal to or better than $\pm 1/3d$ using a verified length standard. N is a whole number.
- Vary the position across the receptor, and the orientation of the test objects so that each axis is tested for the five dimensions.
- Tests shall be conducted at both the minimum and maximum conveyor speeds, or at the specified single speed, as marked on the instrument nameplate.
- Check that the dimensions indicated are within the maximum permissible error, i.e. the display is either Nd or $(N \pm 1)d$. Check that the dimensions indicated on the dimensional indicator are repeated on the system indicator.

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FIGURE 13/1/2A – 1



Quantronix Model CubiScan 200-XIR

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FIGURE 13/1/2A – 2



Seal

Showing Upper Dimensioning Frame, Indicator and Sealing Method