Australian Government

National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 13/1/25

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.

Datalogic Automation Model Accusort AV6010 Dimensional Measuring Instrument

submitted by   Datalogic Automation Pty Ltd
130/45 Gilby Road
Mt Waverley   VIC   3149

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 129, *Multi-dimensional Measuring Instruments*, dated July 2004.

This approval becomes subject to review on 1/06/18, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – certificate issued	17/05/13

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 13/1/25' 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.

Special

Instruments are only approved for use for determination of the dimensions and volume of the smallest rectangular box that could contain an object, for the purposes of determining freight or postal charges.

The dimensions determined may also be used for the calculation (by peripheral equipment) of a volume and/or 'dimensional weight' (*) value of the object, also for the purposes of determining freight or postal charges.

(*) 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.

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

Dr A Rawlinson

TECHNICAL SCHEDULE No 13/1/25

1.   Description of Pattern   approved on 17/05/13

A Datalogic Automation model Accusort AV6010 dimensional measuring instrument (Figure 1) which is approved for use for the determination of the linear dimensions of certain objects while they are in motion. Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices.

Instruments are approved for use over a temperature range of 0°C to +50°C and must be so marked.

1.1   Details

The pattern is approved for use for the determination of the linear dimensions of objects having maximum dimensions (i.e. length × width × height) of 1800 × 900 × 900 mm and minimum dimensions 100 × 100 × 50 mm, with a scale interval of measurement (d) of 5 mm and a belt speed (V_{max}) of up to 3.15 m/sec.

The pattern converts the detected characteristics into the linear dimensions of the smallest rectangular box (parallelepiped – #) that would fully contain the object.

The pattern is approved for use in measuring the linear dimensions of opaque objects only; the dimensions determined may also be used for the calculation of volume and/or 'dimensional weight' value (*) of the item (refer to the Special Conditions of Approval).

 (#)   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.

(*)   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   Dimensioning System

The pattern includes a Datalogic Automation model Accusort AV6010 dimensioning system which is mounted on a supporting frame above a belt-conveyor type load receptor (Figure 1 shows a typical conveyor arrangement). The dimensioning unit (Figure 2) comprises a model AV6010 Camera module which determines the length and width and a model AV6010 Laser Rangefinder module which determines the height of objects.

The Camera module receives data from the Rangefinder module and tachometer (see cl. **1.3 Tachometer**) and processes the measurement data to determine the linear dimensions of the object.

Measurement results are output to the local indicator unit (Figure 3). The system operates using Accu-Vision versions AV6010_ASIOMLO_6_2_0_0 and AV6010_ASIOMLM_6_2_0_0 software.

1.3 Tachometer

The instrument uses an Accusort Part Number 0110340020 tachometer to measure the length of the object in combination with the camera module. The tachometer is fitted to the linear track and generates pulses based on the displacement of the track while the laser dimensioning head detects the object being measured.

1.4 Local Indicator Unit

The Accusort AV6010 dimensioning display Part Number 1000068435 (or Datalogic model GP018) indicator (Figure 3) provides a 2 line alphanumeric LCD local display for indication of measurement results. The indicator is also used to display any error messages that occur during a measurement operation.

1.5 Workstation

An optional computer running either Internet Explorer of Mozilla Firefox can be installed to view the user interface or used to make configuration changes.

1.6 Indications

The pattern is fitted with a local indicator unit (Figure 3) however measurement data from the AV6010 is made available to other systems for indication and/or printing.

Printed and displayed information must be made available for verification and must comply with the requirements set out in document NMI R129, *Multidimensional Measuring Instruments*, in particular as per the extract below.

> 7.9.1 Any printed ticket or displayed indication shall include sufficient information to identify the transaction, for example:
> (a) dimensions: length (*L*), width (*W*) and height (*H*);
> (b) volume (vol);
> (c) weight (Wt) if the instrument includes a weighing instrument;
> (d) dimensional weight (Dim Wt ... kg or DW ... kg);
> (e) dimensional tare (DT ... kg);
> (f) conversion factor (F);
> (g) quantity for charging, for example dimensions, vol or DW ... kg;
> (h) price rate and price; and
> (i) date, transaction number or other identification of the object.
>
> *Note 1:* Icons may be used to identify indications.
> *Note 2:* When the customer is not present during the measurement process the above information need not be displayed or printed out at the time but shall be available on request.
> *Note 3:* The price interval and the price rate shall comply with the national regulations applicable for trade.
>
> 7.9.2 A printed ticket shall also contain the following printed or pre-printed information:
> (a) that the dimensions and/or volume shown are those of the smallest rectangular box that fully encloses the object; and
> (b) that the dimensional weight is a calculated value deemed to be a weight value obtained by applying a conversion factor to the object's volume or dimensions.

1.7   Descriptive Markings

Instruments carry the following markings (in the vicinity of the indicating device):

Manufacturer's mark, or name written in full	Datalogic Automation
Model designation	.....
Serial number of the instrument	.....
Year of manufacture	.....
Pattern approval mark	NMI 13/1/25
Maximum dimensions for each axis	*Max* ..... cm
Minimum dimensions for each axis	*Min* ...... cm
Scale interval	d = ... cm
Maximum belt speed	*Max* ..... m/min
Minimum belt speed	*Max* ..... m/min

1.8   Verification Provision

Provision is made for the application of a verification mark.

1.9   Sealing Provision

Provision is made for sealing the calibration adjustments in software using an audit trail which records adjustments. The Audit trail is accessed and viewed from within the workstation.

Provision is also made for sealing the AV6010 dimensioning unit by means of sealing wire and sealing holes in the back cover of the camera module (Figure 4).

TEST PROCEDURE No 13/1/25

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

Note: Refer to clause **1.6 Indications** – Printed and displayed information must be made available for verification and must comply with the requirements set out in document NMI R 129, *Multi-dimensional Measuring Instruments*, dated July 2004.

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 12 of the *National Measurement Regulations 1999.*

The maximum permissible error at verification is:

±1.0 cm for lengths from the minimum length to any value up to and including the maximum length capacity of the instrument.

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 × width × 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 Nd and the lengths shall be known to an uncertainty equal to or better than ±1/5 of the maximum permissible error, which is equal to the scale interval (d). N is a whole number.

(b) Carry out at least three test runs for each length, varying position and orientation across the receptor. Each measurement shall be within the maximum permissible error.

(c) Check that instruments are marked in accordance with clause **1.7 Descriptive Markings**.

FIGURE 13/1/25 – 1

The AccuVision AV6010 Long-Range Camera System includes:

❶ AV6010 Camera with integrated:
- Camera Head Module
- Illumination Module
- DCM (Distributed Computing Module)
- Power Supplies

❷ Adjustable Folding Mirror

❸ AV6010 RangeFinder (with power supply)

❹ Tachometer

❺ VisionCapture / Image Depot Server (optional)
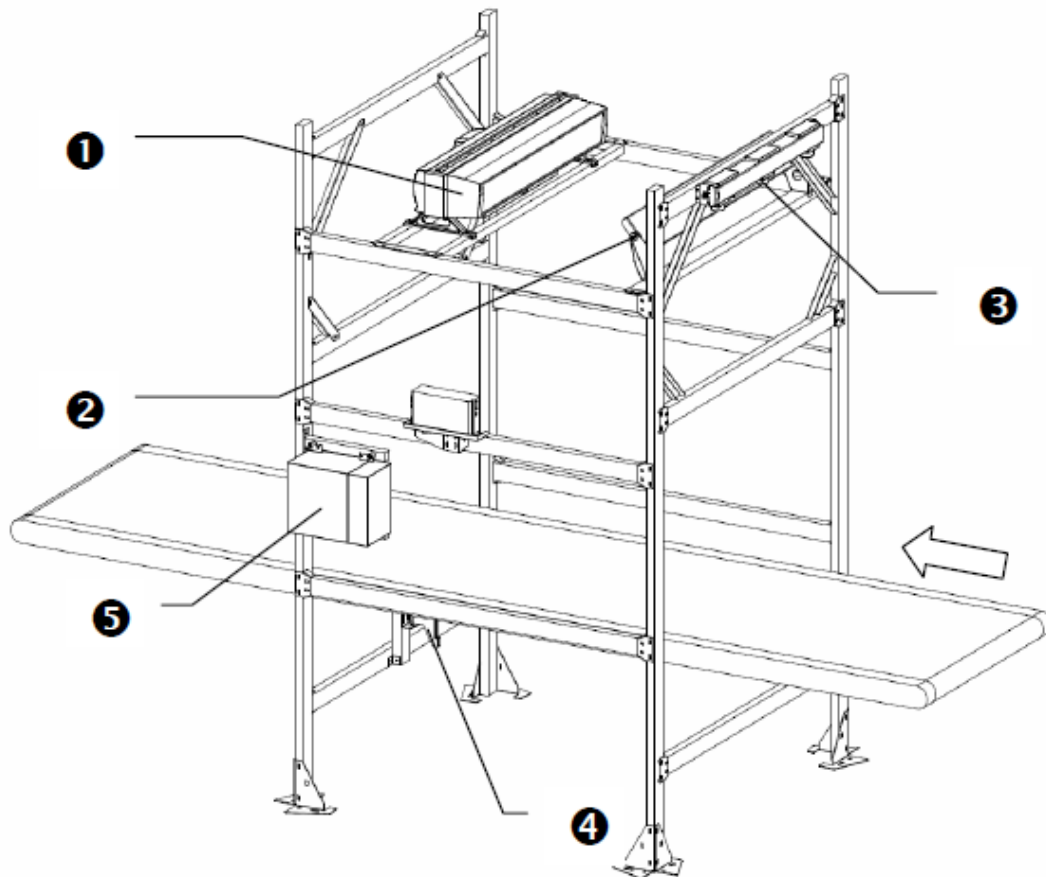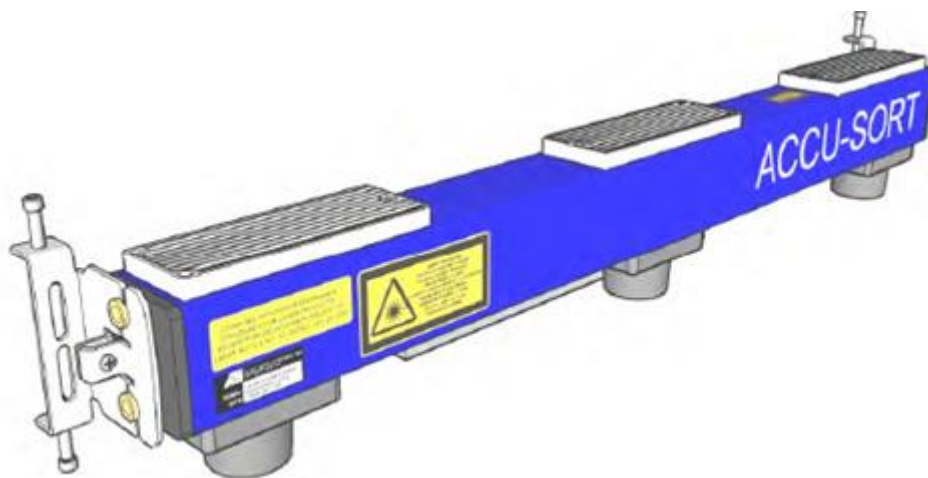

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FIGURE 13/1/25 – 2

(a)   AccuVision AV6010 Camera Module

(b)   Rangefinder for AccuVision AV6010 Camera Systems

Camera Module and Rangefinder Module

FIGURE 13/1/25 – 3

Typical Display of Remote Indicator Unit

FIGURE 13/1/25 – 4

Showing Typical Mechanical Sealing Provision on the Camera Module

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