CDIM

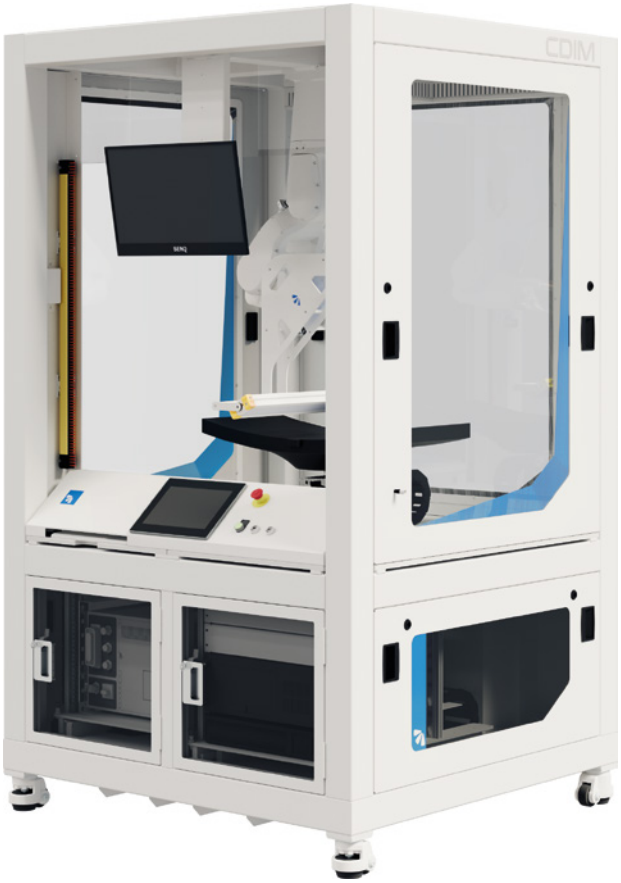
Curved Display Inspection Machine

Standalone inspection system for curved displays, supporting multiple product types without major hardware changes.

Equipped with a linear camera system that translates curved images into flat representations for accurate defect detection.

Deep-learning software to define the expected image and identify a variety of error types.

Configurable interface to set up, monitor, and customize vision tests quickly and flexibly (Controlar Vision App).



PRODUCT DESCRIPTION

The CDIM – Curved Display Inspection Machine is a standalone inspection system for curved displays. Equipped with a linear camera, it translates curved images into flat representations for accurate defect detection. Powered by deep learning, the system learns the expected image profile and reliably identifies defects.

The CDIM is designed for adaptability: with the robot mounted on the machines' overhead frame, the system can accommodate multiple product types by simply changing the nest and updating the robot programming.

KEY FEATURES

- **Linear camera system** for curved-to-flat image translation.
- **Deep learning algorithms** for adaptive defect detection .
- **Overhead-mounted robot** enabling flexible product handling.
- **Quick change nests** for fast reconfiguration to different displays.
- **Standalone station** with easy integration in production environments.

CONFIGURATION

This station is composed of:

- Linear camera system with dedicated lighting.
- Overhead-mounted robot with absolute encoder.
- Customizable nests for different display types.
- Deep learning inspection software.
- Proprietary vision app.
- Operator monitor displaying the robot's live image feed.

MAIN APPLICATIONS

Display inspection, configurable and with deep learning technology.

- (If the display is on) Detection of dead pixels, errors in the displayed image.
- (If the display is off) Detection of display defects, curvature deviations, defects in the display frame.

Controlar Vision App

Configurable interface developed by Controlar that enables quick and flexible configuration of vision tests.

Highlights:

/ Trigger mode: manual or automatic (configurable in-app).

/ MSA mode: configurable for quality testing.

/ Local database with story mode: allows users to view all stored photos; the number of stored photos is user-defined (e.g., keep last 500 photos; older entries are pruned).

/ Data export to CSV: for external analysis and integration.

/ Live camera mode: real-time feed from the camera (optimal for production lines).

/ Station/line map render: visual aid for users unfamiliar with the layout.

/ Selection of multiple test modes: display defects, image view, or display frame defects.

Settings and Dynamic Recipes:

/ Adjustable camera parameters: exposure time [ms], frame rate [fps].

/ Image reference: configurable to test products at different positions (requires adequate camera range).

/ Test model creation: defining criteria to locate features (e.g. screw positions, alphanumeric markings) and verify part placement (the configurable element is the search criteria; the test adapts accordingly).

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