

DIAGAUGE

Non Contact accuracy

DIAGAUGE is the RETINÆ system for non contact accurate measuring of rigid objects . The application feasibility is defined through various features but the most important are field of view width and requested resolution.

The system is composed by a special light-condenser projector device, telecentric lens and high resolution – high quality matrix camera sensor (digital or analog according to needed performances). Protection from external illumination is mandatory.

The standard configuration are that based on industrial PC and the one based a compact smart camera enclosing both sensor and CPU.

The system can be connected to ethernet line to exchange measured data and working formats.

The application software is designed to guarantee ease of use and modularity of function. The operator interface is provided in Italian, English and operator mother-tongue.

Installation is simple and fast, special attention has to be paid to optical alignment but software is preinstalled.

A self-diagnosis procedure will check about camera focus, position and light at each system activation without operator supervision.

During automatic cycle the system acquires the “piece in position” signal and executes the defined measuring sequence.

The measurements are configured and composed through a simple editor and several consequential layers of execution are allowed for each elaboration.

On every piece different measures sets can be executed and all data are recorded in a database.

Allowed measures models are point, line, circle, generic, conic, affine reference system retrieval; derivate measures like distance and intersections can be extracted in subsequent layers.

For each measurements, thresholds can be set to let the system generate the conformity verdict; visual, serial, ethernet or I/O message/signal can be consequently activated.

The system has to be calibrated using “master” samples to give the real mm/pixel ratio. Calibration is paired with validation function to verify the system capacity.

In some cases can be useful or mandatory to apply a special camera calibration (“unwarping”) to compensate unwanted optical warping effects.

The option available for this system are: bar code reader for piece identification, custom label printing function, piece rotation control with step/brushless motor spindle for multiple piece projections measuring.

DIAGAUGE represents the RETINÆ solution for productions where you can gauge the quality.



DIAGAUGE - Features¹:

CAMERA SENSORS (Type and S/N ratio)	RESOLUTION (Field of view fraction)
ANALOG 768 dB 54	1/5000
DIGITAL 640	1/6500
DIGITAL 1024	1/10000
DIGITAL 1280	1/13000
DIGITAL 1600	1/16000

Options:

Bar / matrix code reader
Label composition and printing
Object spindle rotation control
TFT touch-screen Panel
NPN/PNP 24VDC I/O Interface

The screenshot displays the DIAGAUGE software interface. At the top, there are two camera calibration windows showing a circular field of view with red and green markers. Below these is a toolbar with various icons for navigation and settings. The main interface is divided into several sections: 'Dati generali' (General data), 'Acquisizione' (Acquisition), and 'Visualizza' (View). The 'Acquisizione' section includes controls for 'Start', 'Stop', 'Reset', and 'Carica'. The 'Visualizza' section includes 'Carica' and 'DBASE'. Below these are sections for 'Acquisizione a tempo' (Time acquisition), 'Acquisizione sincrona' (Synchronous acquisition), and 'Elaborazione' (Processing). At the bottom, there is a 'Diametri' (Diameters) table, a 'Gole' (Gorges) table, and a 'Lunghezza' (Length) table. The 'Diametri' table shows measurements for 0 OK (9.855), 1 OK (7.872), 2 OK (8.413), 3 OK (13.05), 4 OK (8.43), and 5 OK (13.037). The 'Gole' table shows measurements for 0 OK (1.415) and 1 OK (20.175). The 'Lunghezza' table shows a measurement of 49.845. To the right of these tables is a 'CONTATORI' (Counters) section with 'Totale' (Total) and 'Scarti' (Defects) columns, both showing 0. Below the tables is a 'Formato' (Format) section with 'Formato: M MARELLI'. At the bottom of the screenshot, there are two status messages: '[12/09/05 16.46.06] Msg 0: elabØ T= 884ms' and '[12/09/05 16.46.06] Msg 0: elab+viewØ T= 1013ms'.

DIAGAUGE - software features²:

- On line driving help
- English / Italian / mother-tongue messages
- Custom dictionary
- Measures sequence editor
- Multi-layer measuring execution
- Multi-sequence elaboration (according to piece format)
- Optical distortion compensation
- Advanced model fitting function
- Remote assistance software
- Calibration and validation function

DIAGAUGE - hardware composition:

(all components are commercial to allow easy replacement)

- Single power supply: 24vdc 110vac 220vac
- Light condenser projector
- Field of view range: 0.40 mm to 120.00 mm
- High S/N ratio digital or analogic cameras
- Dedicated telecentric lens
- Industrial PC or smart camera
- Ethernet interface.
- Optional motion control interface.
- Optional high resolution TOUCH / TFT

1 Product features subject to change.
2 Custom features available

