

Functions

Calibration and linear correction:

- Simple, fast calibration using a measuring object with a known width.
- The user can introduce an automatic, linear correction term, that will be added to/subtracted from the measuring value. This means that the user can himself make the correction of the measuring values, if needed.

Digital and analogue output

- Communication through RS232 as standard or RS422, RS485 and Ethernet optional.
- 14-bits analogue output as an option (0 - 20mA, 4 - 20mA, 0 - 10V).
- Built-in two row display shows the status and the measuring value in parallel.
- External, large display as an option.
- Display screen with user's interface as an option.
- Settings are made in a simple menu system on the built-in display. Can also be made through RS232, RS422 or RS485.

Accessories

- 14-bits analogue output (0 - 20mA, 4 - 20mA eller 0 - 10V).
- External display with 5 digits. 14.2, 20.3 or 57.0 mm character height.

Miscellaneous

Euclides System is delivered as a function. This means that Latronix AB takes part during the whole installation process until the System is in full operation. *Euclides System* is available both in standard version and as a customer tailored system.

We also sell separate precision meters for installation by the customer. Please, have a look at *LaserDist* and *LaserDist PRO* at our web site www.latronix.se



Euclides Diameter & Surface System

Technical specifications of all models	
Measuring speed	more then 100 measurements per second
Electrical casing	IP65
Ambient temperature	0 to +40°C. Extended temperature range can be obtained as an option.
Supply voltage	24V DC (1A typ / 1.5A max). Allows 0.2s voltage drop (capacitor - backup). Power supply for 230V AC included.
Dimensioners	Various models: L varies, W=250mm, H=150mm
Laser beam output	Max. 6mW beam power. Power to be chosen for each model to achieve the specified measuring accuracy in the given measuring range.
Laser class	2, 2M, 3R or 3B depending on model and measuring conditions.
Wavelength	635nm
Built-in display (standard)	2 row display with key set (6.7mm character height)
Connection (standard)	Ethernet, trigger input
Cable length	Customer specified
External display (option)	5 digits, 14.2, 20.3 or 57.0mm character height
Connection (option)	RS422, RS485, Ethernet
Analogue output (option)	14 bits, 0 - 20mA, 4 - 20mA, 0 - 10V
Graphical user program	Optional
Time between calibrations	1year, performed by Latronix AB or trained personnel.

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Euclides Diameter & Surface

Euclides System means high quality and precision measurement of small and large objects where speed and accuracy are important.

For paper mills we have developed *Euclides Diameter & Surface* for control of irregularities on the paper roll and for measurement of the diameter along the whole width of the roll.

Euclides Diameter & Surface is wholly automatic and requires no physical contact. Data obtained about the surface and the diameter of the paper roll is presented graphically. By this system irregularities on the roll as for instance marks or traces can be detected at an early stage.

Information of each individual roll can be saved in a data base so that one can see how the roll looked like when it was produced. If an irregularity is discovered on a later occasion, such data can be used to compare with.

Advantages

Euclides Diameter & Surface offers the following advantages:

- Non-contact surface and diameter measurements of both moving and stationary paper rolls
- Adaptation to and integration with an existing control system
- Accuracy as high as 0.5 mm
- Simple re-setting and calibration on a built-in display that also shows the status and the last measuring value
- Statistics for later follow-up
- Measurement of at least 10.000 paper rolls per day

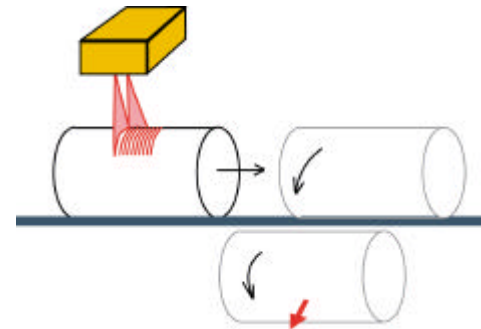
The System measures with high speed and with high reliability. It can easily handle two conveyors simultaneously.

Method and installation

The System scans the surface of the paper roll in order to detect irregularities and possible damages. It uses extensive mathematical algorithms to present a real picture of the surface. The method makes the measurements less sensitive to loose paper borders, which otherwise can be a problem at diameter measurements.

Euclides Diameter & Surface 200°

Euclides Diameter & Surface 200° scans the surface in two directions so that about 200° of the envelope surface of the roll is covered. It measures simultaneously the diameter while the roll is moving on the conveyor. The surface and the diameter variations are presented graphically in a user-friendly interface according to the image on the next page. The information is also sent to the existing control system for comparison with defined alarm limits and up-dating of the data for each individual roll.



Euclides Diameter & Surface 200° scans in two directions

Euclides Diameter & Surface 100°

Euclides Diameter & Surface 100° scans the surface and measures the diameter of stationary or moving paper rolls.

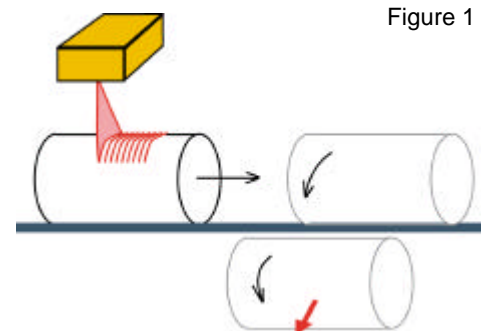


Figure 1

Figure 1 shows how the scanning is done on a paper roll that is moving.

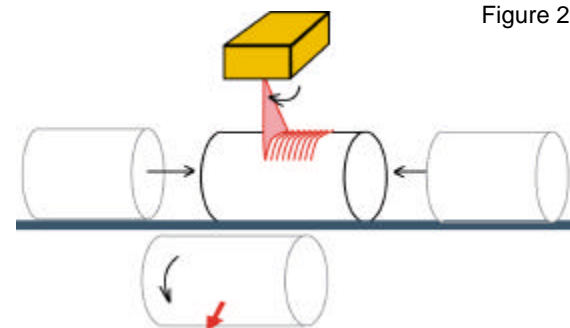


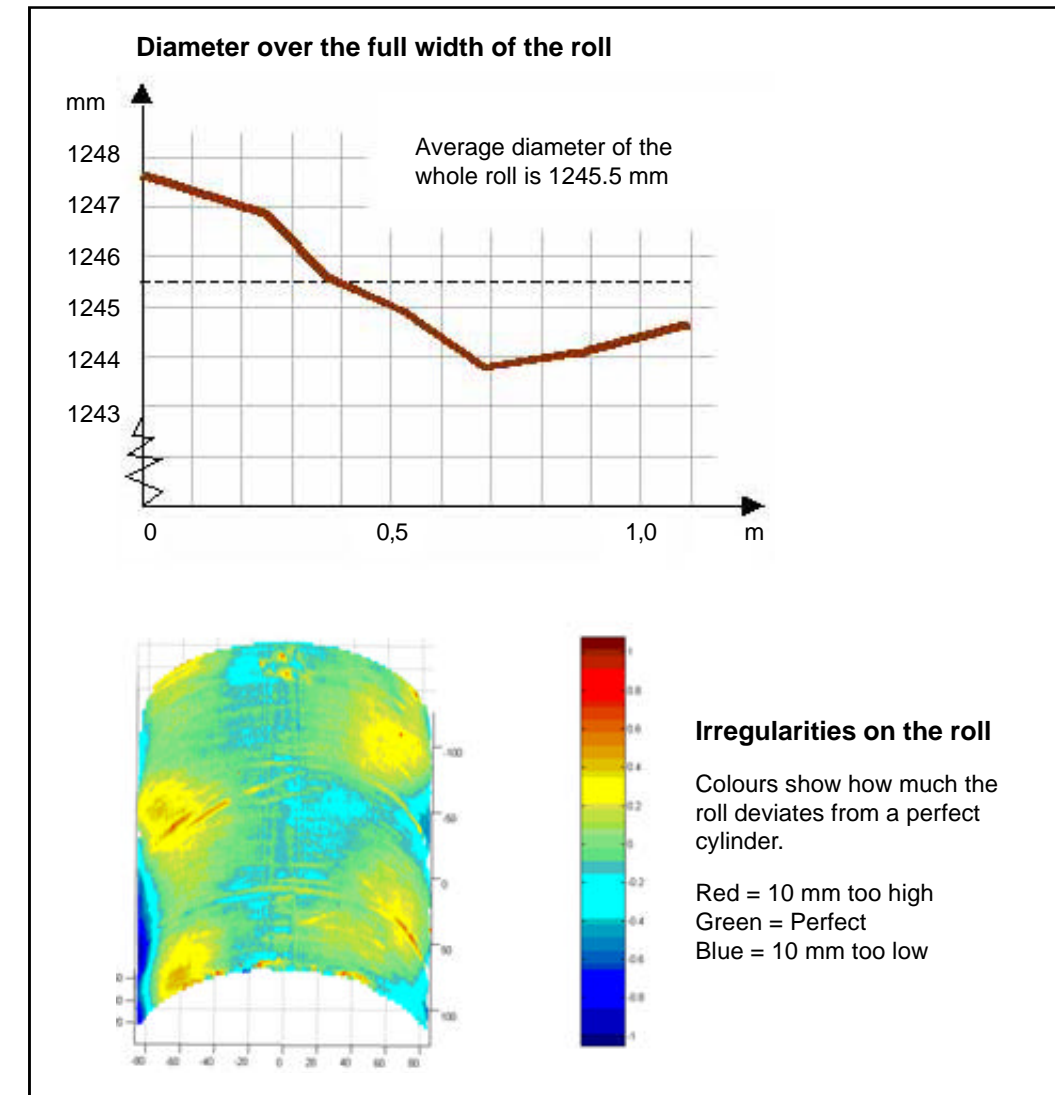
Figure 2

Figure 2 shows the scanning of stationary rolls. In such cases the System can handle rolls that come from two sides.

Presentation of the measuring results

Euclides Diameter & Surface produces a great amount of output data. The data can be saved for up to half a year in order to be analysed on a later occasion. Here below an example of a standard interface is shown. The user interface can preferably be adapted according to the customer's wish.

In the upper diagram of the example here below the calculated diameter variation along the full width of the paper roll is shown. Also, the average diameter is calculated. The richly coloured lower part of the figure shows where and to what extent the roll deviates from a perfect, cylindrical roll. If the roll had been fully cylindrical the colour would have been light green.



The figure above is an example of how the results from *Euclides Diameter & Surface* are presented on the display screen. The colours in the lower part of the figure show how much the roll deviates from a perfect cylinder. Red colour shows that the area is 10mm higher than it should be. Blue colour shows that the area is 10 mm lower than it should be. Green colour shows that the roll has a perfect shape.