PAINTING DEFECT DETECTION

CUSTOMER BENEFITS AND GAIN DECISIVE ADVANTAGES

- **Ø HIGHER QUALITY**
  - § Guaranteed Quality Assurance
  - § Reduced Customer non conformity and material loss
- **Ø EFFICIENCY / ACCURACY**
  - § Accurate detection of running strip
  - § Ambient light immunity
- **Ø RELIABILITY**
  - § Specific design and ruggedness for severe environments
  - § Easy installation
- **Ø AVAILABILITY**
  - § Less down time at the processing line

APPLICATION

ORION system is a contact less equipment (composed of SPICA optical sensors) able to detect considerable painting defects on steel strip during continuous painting process.
Controlled maximum width is 1350 mm.

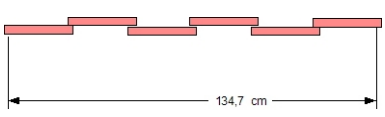
SPICA Optical sensor

MEASUREMENT PRINCIPLE

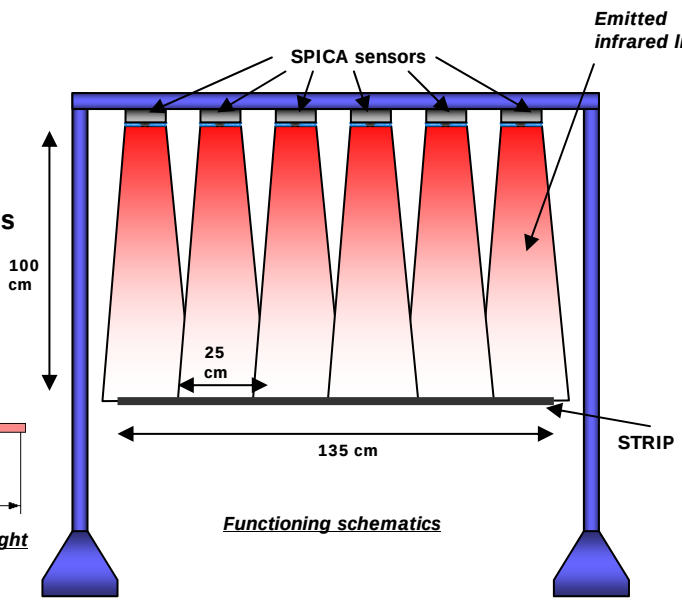
SPICA sensors detect different amounts of reflected energy of the strip.
SPICA is equipped with an infrared emitter which is emitting a line of light of approximately 30 mm width and 250 mm long at a 1m-distance from the strip.
SPICA is equipped with a sensitive cell associated to a very fast electronic device for digital treatment of signals.
It analyses permanently profile of energy with its sensor and searches longitudinal variations of the signal. Such variation is a signal of lack of painting on a determined area of the strip.
Running speed of the strip is 65 m/min. Acquisition time of one measure is 10 msec.
In 10 m/sec strip ran 11 mm. Each part of the strip will be saw 3 times by sensor.
Minimum detectable defect is of 30 mm² for black defect on clear colour.
It means 4 mm* 7mm approximately or other similar surface.

INSTALLATION

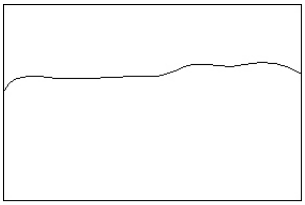
6 SPICA sensors are mounted along the strip to be controlled. Sensors are assembled in alternation offering a complete cover of sheet's surface.



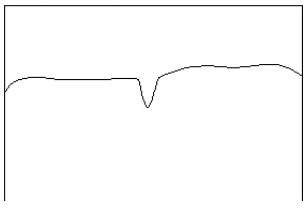
Top view of SPICA sensors emitted light and covered zones



Functioning schematics



Profile without defect



Profile with a painting defect

Energy profiles given by the sensor

contacts@arck-sensor.com / www.arck-sensor.com

RÉGION MIDI-PYRÉNÉES
Union européenne
L'Europe s'engage en Midi-Pyrénées avec le FEDER

PAINTING DEFECT DETECTION

ORION is supplied with

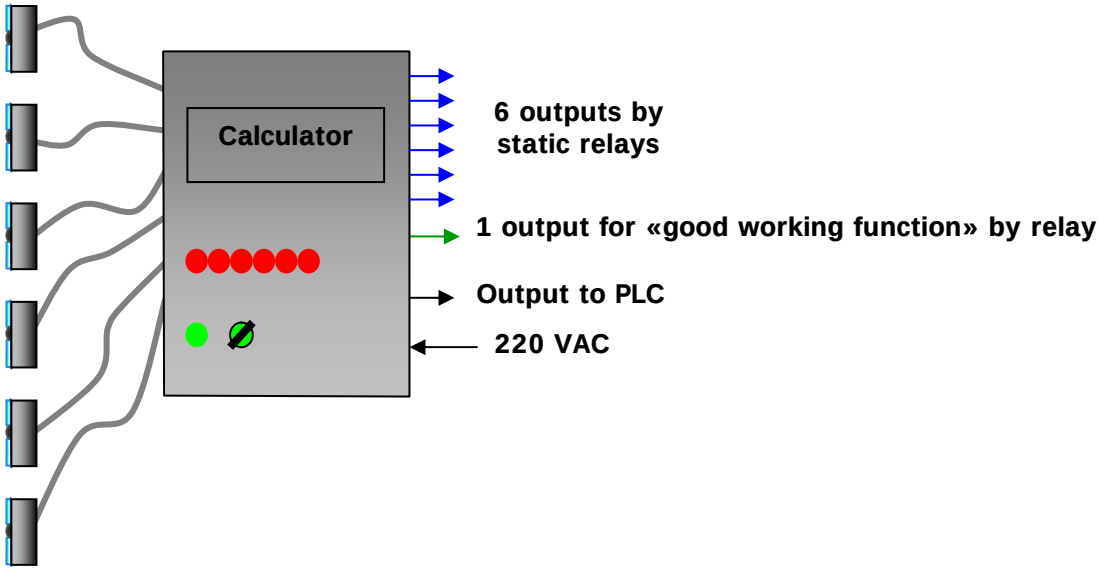
• 6 SPICA optical sensors with a software to read the infrared profile.
Ø Power supplied by central calculator.
Ø Output by RS422, with ARCK SENSOR protocol.

• 1 electrical cabinet with an associated calculator equipped with :
Ø 7 outputs by relays (6 for Spica heads + 1 good working).
Ø 220 VAC Power Supply.
Ø Packaged electronic board to install in electrical box.
Ø Input of Data reception from SPICA heads.
Ø Output of Relays incorporated on an additive board.
Ø RS422 interface for programming and control.

• Frame of support for the whole set of sensors equipped with two feet to be posed and fixed on rails.

INTEGRATED FUNCTIONS ON CENTRAL CALCULATOR

Central calculator integrates the following functions :
• Communication with sensors.
• Communications with another calculator or external PLC through RS422 interface.
• Automatic useful surface detection to be controlled.
• Good working and alarm relays activation.
• Alarm light activation on front side of the electrical cabinet.
• Record in internal memory of detected defects available for external communication.
• Statistics : number of defects per hour ; distribution of defects by zones.



Nota : Non-contractual document - specifications may be subject to modification without prior warning / May 2009 / DCFA 020 10