

# Telemecanique *Osiris* luminescence sensors

**The infallible ability**  
to detect the invisible



**Merlin Gerin**  
**Modicon**  
**Square D**  
**Telemecanique**

Osiris luminescence sensors recognise with certainty and consistency the invisible marks used in numerous industrial sectors.



Previously, there was no answer to your detection problems...

... Now, with *Osiris luminescence*, the solution has finally arrived.

Designed as standard for the detection of invisible marks containing blueing agents (aesthetics, security, tamper proofing, etc.), the luminescence sensors, incorporating ultra-violet diodes, can also see more clearly any object or mark containing blueing properties.

Due to its high contrast between blueing and non-blueing, detection remains both consistent and certain.

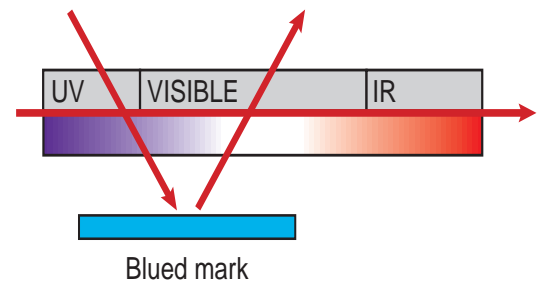
Certain applications considered impossible can now be solved, and the following simple test will provide the answer:

Position the spot on the object to be detected.

If one visible colour of the spot appears, the object is detected.

### Principle of operation

The luminescence is the transformation of an ultra-violet light beam into a visible beam. Materials possessing this property are called blueing agents, since blue gives the best performance. To a lesser degree, other colours also have this property.



## 2 complementary formats to cover all your applications

### ■ Design 18 format

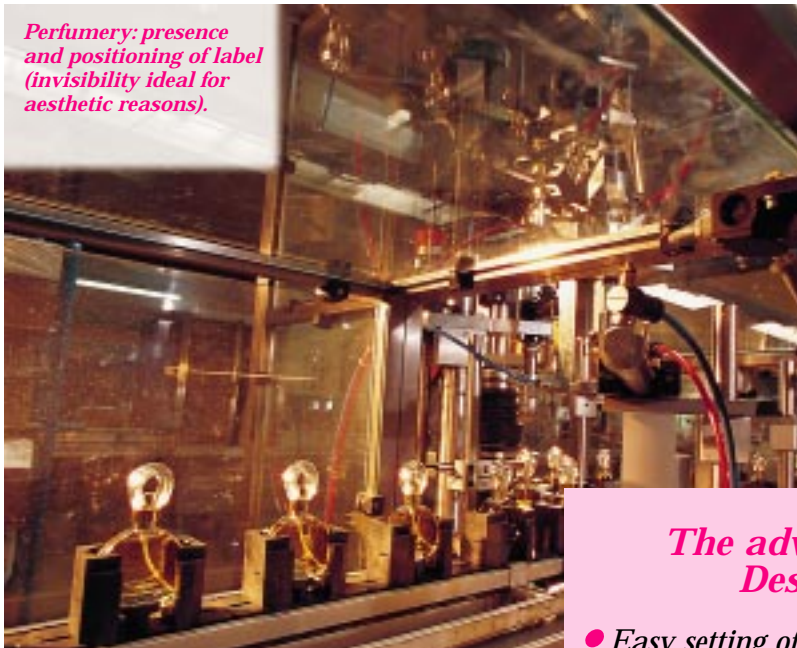
Unique on the market, this Telemecanique sensor represents condensed technology. It provides you with a solution for luminescence detection, in a format which is very simple to install, and its very competitive price will provide you with a new outlook regarding the use of invisible inks and adhesives.

### ■ Compact design format

Particularly suited for very high operating rate applications. They enable the precise monitoring of print quality using blueing agents.



*Perfumery: presence and positioning of label (invisibility ideal for aesthetic reasons).*



*Ceramics quality control: sorting by invisible blueing marks, either manually or automatically, without subsequent erasure. Sorting is triggered when the detector reads the mark.*

## Principal applications

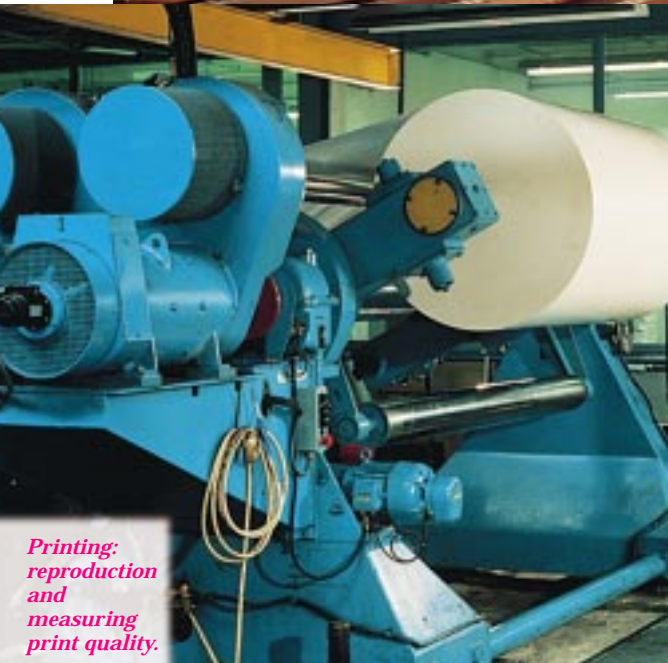
- Detection of invisible marks (cosmetic and pharmaceutical packaging).
  - Indexation using invisible marks (wood industry).
  - Use of invisible marks for quality control (ceramic industries).
  - Monitoring concentration of blueing agents (printing).
  - Authentication.
  - Detecting fibres (textile industry).
- Not taking into account any applications yet to be discovered...
- On packages, verifying the presence of a white label on a white background or a transparent label on a transparent background, by detecting the blueing agent content of the varnish or the adhesive. This detection is unrelated to the marking or the colour of the label.

## The advantages of Design 18

- *Easy setting of the focal distance due to the 60mm threaded case.*
- *Simplicity of mounting on a machine: 7 times smaller than any other models currently available.*
- *Detection of very fine marks due to the narrowness of its spot and its exceptional depth of field.*
- *Standardised format, compatible with numerous installation and setting-up accessories.*
- *Adjustment of contrast by potentiometer for difficult conditions (detection of a blued mark on a blued background).*

## The advantages of Compact design

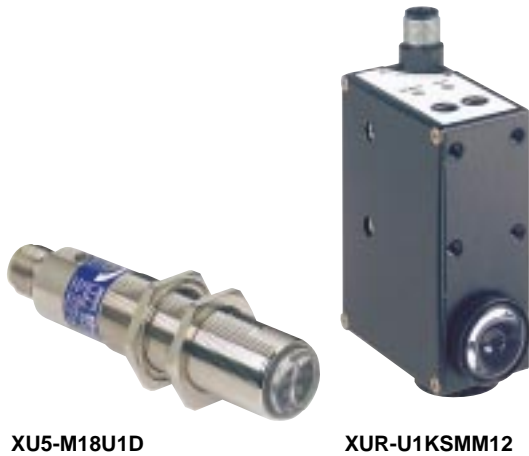
- *Perfectly suited for high operating rate applications (2kHz).*
- *Optimal adjustment of contrast by teaching feature.*
- *Precise monitoring of blueing agent concentration using analogue output.*
- *Interchangeable optical system for alternative focal distances.*
- *Connection to 3 alternative axes using M12 rotary connector.*



*Printing: reproduction and measuring print quality.*



*Verification of label presence on clothing: some fibres used for the label contain blueing agents.*

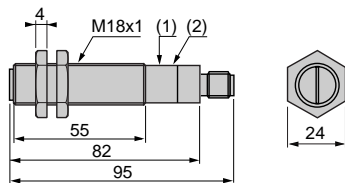


XU5-M18U1D

XUR-U1KSMM12

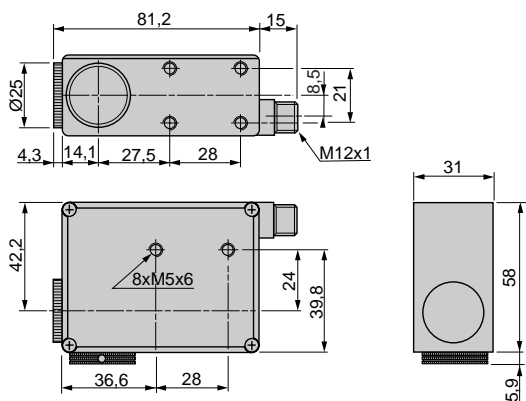
## Dimensions

### XU5-M18U1D



(1) Potentiometer  
(2) LED

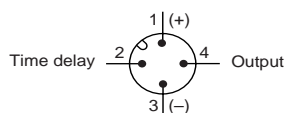
### XUR-U1KSMM12



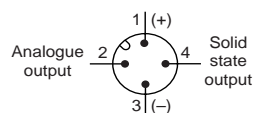
## Connector schemes

(sensor connector pin view)

### XU5-M18U1D



### XUR-U1KSMM12



## Technical characteristics

### System / transmission

Diffuse with ultra-violet transmission, 370 nanometers

### Product certification

XU5-M18: CE, UL, CSA  
XUR-U1K: CE

### Nominal sensing distance

XU5-M18: 20mm for colour mark reading, 0...80mm in diffuse mode  
XUR-U1K: 9mm (7...18mm with lens adaptors)

### Spot dimensions

XU5-M18: at 20mm =  $\varnothing 3 \times 1$ mm  
XUR-U1K: at 9mm =  $\varnothing 5$ mm

### Sensitivity adjustment

XU5-M18: by potentiometer  
XUR-U1K: automatically by self-teaching feature

### Supply

12-24V DC with protection against reverse polarity

### Output type and switching capacity (sealed) with overload and short-circuit protection

XU5-M18: 3-wire PNP, light switching,  $\leq 100$ mA  
XUR-U1K: 3-wire PNP or NPN programmable, light or dark programmable switching,  $\leq 200$ mA

### Voltage drop, closed state

XU5-M18:  $\leq 1.5$ V (PNP)  
XUR-U1K:  $\leq 1$ V (NPN),  $\leq 2$ V (PNP)

### Current consumption, no-load

XU5-M18:  $\leq 20$ mA  
XUR-U1K:  $\leq 80$ mA

### Maximum switching frequency

XU5-M18: 1kHz  
XUR-U1K: 2kHz

### Materials

XU5-M18: nickel plated brass case, PMMA lenses  
XUR-U1K: zinc alloy case, glass lenses

### Degree of protection

IP 67 conforming to IEC 529

### Weight

XU5-M18: 75g  
XUR-U1K: 550g

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