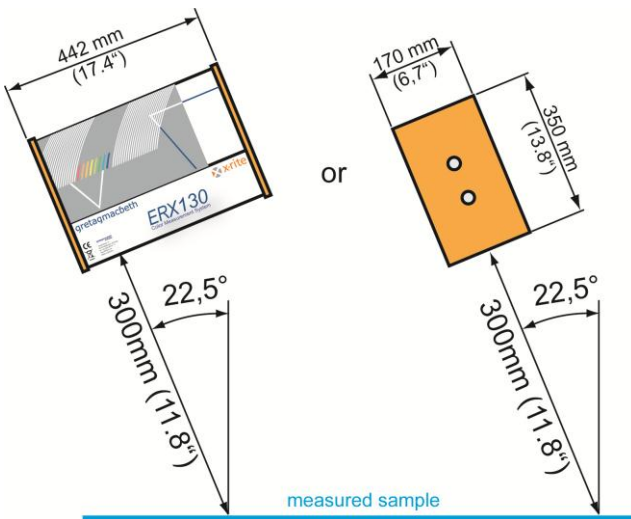


Functional description ERX130

The ERX130 is a compact In-Line spectrophotometer with the coaxial geometry, typical: illumination at 22.5°, measurement at 22.5° coaxial.

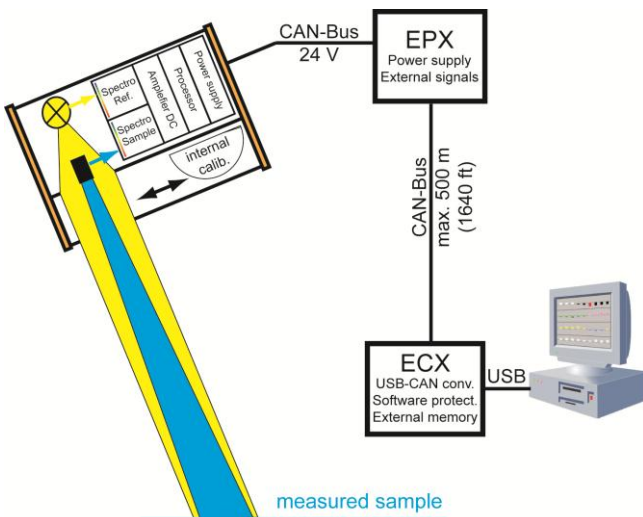
The sample is measured non-contact in a distance of 300 mm (11.8 inch) with a measurement spot of Ø90 mm (picture 1).



Picture 1 Measurements

For a measurement a sample will be illuminated by white light (Xenon flash lamp, daylight) typically at 22.5° for approx. 1 / 1000 sec. In the same direction (under 22.5°) the reflected light will be collected and guided to a high resolution spectrometer (picture 2).

Simultaneously with the sample measurement a reference measurement of the lamp will be taken with a second high resolution spectrometer (full dual beam design).



Picture 2 Function blocks in the ERX130

In both spectrometers the optical measurement signals will be separated into 401 different wavelength signals via corrected holographic concave gratings and measured via 401 photoelectrical sensors. The result is a true 1 nm spectral measurement resolution.

The measurement signals will be amplified and digitised with high resolution. A fast processor calculates corrected spectral reflectance data.

These 401 reflectance results (from 330 nm to 730 nm) are the basis for all further colorimetric calculations for any possible illuminant and observer (e.g. CIE Lab data for illuminant D65:10° observer or illuminant C:2° observer).

The automatic internal calibration of the system also includes automatic wavelength calibration for excellent measurement accuracy and long-term stability. This guarantees high and reproducible measurement accuracy.

Control over the color measurement system ERX130 is done via CAN bus interface. This allows distances between the computer and the measuring system of up to 500 m (1640 ft). The built-in optical isolation guarantees stable operation in a real world production environment. In the ECX, close to the computer the CAN bus signal is converted to USB interface to allow the usage of a standard computer.

Typical applications

The In-Line spectrophotometer ERX130 is well suited for all applications where the frequent, non-contact color measurement of a product is needed. In most cases it will be a continuous product.

References

The In-Line spectrophotometer ERX130 is successfully working In-Line for the measurement of

- ✓ Plastic pellets
- ✓ Carpets
- ✓ Woven or knitted textiles
- ✓ Paints and plaster
- ✓ Powders (kaolin, cement, marble, chalk, detergent, ...)
- ✓ Pigments

Special advantages of the ERX130

Precise spectral color measurement

- ✓ Also critical colors and demanding applications can be measured with high quality based on the excellent spectral resolution of 1 nm.
- ✓ The wide spectral range of the ERX130 from 330 nm to 730 nm gives excellent information.
- ✓ The illumination and the observation are coaxial. Thus the product is homogeneously illuminated even when the surface is rough. So rough materials can be measured reliably.
- ✓ Good correlation to the laboratory measurements.

Automatic measurement and calibration

- ✓ Precise color measurement because of automatic internal calibration.
- ✓ Absolute automatic wavelength calibration with highest precision (0.07 nm). Therefore very good long-term stability and precision.

Stable, accurate measurements on the production machine

- ✓ 24 hours, 365 days per year automatic color measurement on the production machine.
- ✓ Despite distance variations of several millimetre stable measurement results.
- ✓ The production speed and ambient light have no influence on the accurate measurements.
- ✓ The unit is robust, splash water tight (IP 65) and rarely needs service thanks to the compact design.
- ✓ The long-life Xenon flash lamp (1 year warranty) is a low-price item.

Frequent or triggered measurement In-Line

- ✓ When the product is always available (like plastic pellets on a conveyor belt or textile on a production machine), the measurement frequency is time controlled.
- ✓ Triggered measurement through external signals is used when a discrete product is in the right position to measure.

This ER product family has been successfully measuring in hundreds of installations since 1987

- ✓ By continued development and improvements our customers have proven systems with the latest technology
- ✓ The current model is the fourth generation and has further improved technical data
- ✓ Development and production of the ERX50 spectrophotometer family in Germany
- ✓ Installations worldwide

Turnkey In-Line color measurement system

The In-Line spectrophotometer ERX130 is typically sold as turnkey system directly from the manufacturer, including installation frame or linear track, software and computer (picture 3). Support and service are available around the world.

At GretagMacbeth you find the experienced experts and proven partners for your color measurement and Closed Loop Color Control!

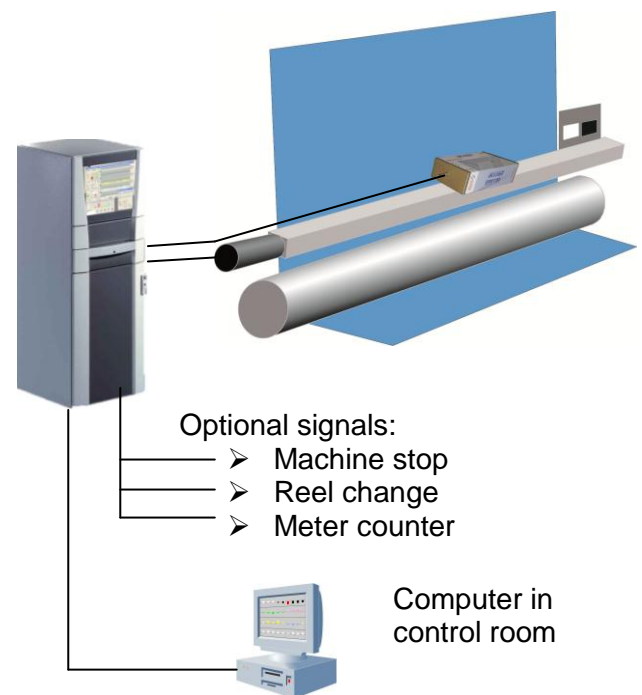
◆ **In-Line spectrophotometer ERX family**

◆ **Software**

- ✓ Quality control
- ✓ Automatic Closed Loop Color Control
- ✓ Machine interface (machine stop, new batch)
- ✓ Alarm signal
- ✓ Link to other information systems

◆ **Linear Track (optional)**

- ✓ Measurement in cross direction
- ✓ Automatic edge detection



The X-Rite group supplies:

- ✓ **Color data products (portable, benchtop, In-Line)**
- ✓ **Software for quality control, color matching and Closed Loop Color Control**
- ✓ **Light booths for visual inspection**
- ✓ **Densitometers, color management systems**

Picture 3: In-Line color measurement

テクニカルデータ ERX130, EPX and ECX

ERX130は、独自の光学系を持つ非接触型分光光度計です。

生産ラインの上の被測定物、紙、織物、プラスチックなどの分野で、製品の色彩情報(反射率、色度)を管理できます。従来の測定装置より広い面積でオンラインでの色測定が可能です。

発光/受光	任意 22.5度を奨励 (45/0 測定に近似) ダブルビーム方式
測定方式	ブルビーム方式
ランプ	D65近似パルスクセノンランプ
キャリブレーション測	外部 と 内部 で実施
定波長範囲	330nm から730nm
波長ステップ/確度	1nm、5nm、10nm ソフトウェアにより変更可能 / 1 nm 20ms
測定時間	90mm φ
測定範囲 照射/読み取り	300mm
測定物との距離	±10mm (dE*0.2以下の範囲にて dE*はCIEL*a*b* D65 光源 10 度視野で算出) 20秒 (一般的な設定間隔) 5秒(最短間隔)
測定深度	dE*0.1以下 (標準白版平均)
測定間隔時間	dE*0.3以下 (12枚BCRA タイル) センサー
反復精度	ヘッドに冷却用エア供給口あり
機器互換性	
冷却	
大きさ/重さ	170×305×444mm / 14 kg
使用環境温度	最大60°C オプションのケース使用で、環境温度は最大80°Cまで
度安全規格	IP65 CE Mark(EPX/ECXも同じ)

電源部 パワーインターフェイス EPX

設置場所	カラーセンサー周辺
入力電圧/範囲/周波数	115V/230V AC / +25~-15% / 45~440Hz 最大100VA
電源容量	普遍的な使用状況で10VA程度
測定器へのケーブル長	最長20m (専用ケーブル)
大きさ/重さ	265×265×130mm / 2.3kg

PC接続部 コンピュータインターフェイス ECX

設置場所	PC周辺
入力電圧/範囲/周波数	115V/230V AC / +25~-15% / 45~440Hz 最大100VA
電源容量	普遍的な使用状況で10VA程度
EPXへのケーブル長さU	最長500m (専用ケーブル)
SBケーブル	普遍的使用で1.5m 最大 3 m
大きさ/重さ	265×265×135mm / 2.4kg



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