

# Densitometers and Sensitometers for your Processor QC

Consistent Image Quality

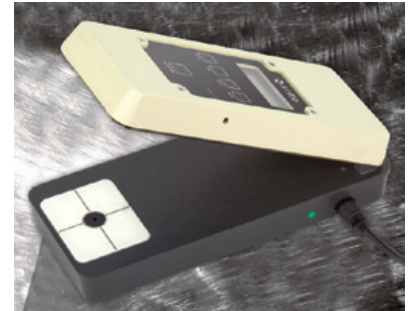
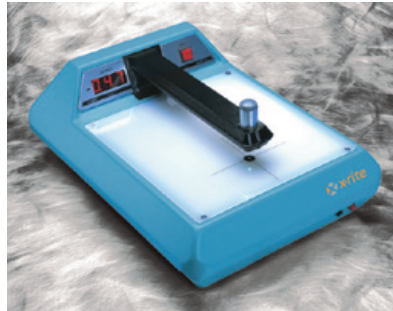


**Consistent** quality images for diagnosis

**Fewer** retakes and less patient exposure to radiation

**Progress** in meeting standards requirements

*In an industry that wakes up to change every morning, companies need to anticipate and exceed the expectations of hospital radiology departments, clinics, mobile units, and medical offices. X-Rite has been doing that for nearly half a century.*



### 396 Sensitometer

#### Performance Features

Small and convenient, the 396 Dual-Color Sensitometer provides single-sided exposures and produces repeatable 21 step exposures on film.

#### Easy to Use

Set the battery operated 396 to the proper exposure, place the film inside, then firmly press down on the cover. When you hear the beep, the exposure is complete.

#### DIN Specifications

Designed and manufactured to comply with the calibration requirements described in DIN V 6868-55.

### 301 Densitometer

#### Performance Features

The 301 Densitometer provides highly repeatable and accurate measurements of black and white film densities up to 5.0D – more subtle than can be seen by the naked eye.

An optional RS232 output allows you to connect to your current computer.

#### Easy to Use

Operation is as simple as “push and read,” and the large LED numerals can be read easily in bright or dim light. Internal memory and the null button allow the operator to make comparative density measurements across a piece of film.

### 331C Densitometer

#### Performance Features

Though the 331C Densitometer is portable and compact, it has the same accuracy and repeatability as larger countertop units, measuring densities up to 4.0 D.

#### Easy to Use

The built-in light table eliminates the need for an external light source and easily accommodates film up to eleven inches wide. The 331C has push-button zeroing, a sleep mode to reduce battery drainage, a certified step wedge, a LED charge status indicator, and instrument carrying case.

### Cost Saving Packages



#### Package 1:

390 densitometer,  
396 sensitometer,  
x-Read QC Analysis Software,  
cable



#### Package 2:

390 densitometer,  
x-Read QC Analysis Software,  
cable

The X-Rite product line includes both manual spot reading and auto-scanning densitometers. Our spot reading models are perfect for field use, providing the same accuracy as larger, table-top models. Our auto-scanning densitometers perform automated calculations (including daily control parameters) and can generate daily D-log E curves. Their internal memory is capable of storing data from multiple processors. The scanning densitometers are also able to communicate data through networking software to a central database, eliminating the need for a computer at every facility.



### 390 Densitometer

#### Performance Features

The 390 Densitometer can read and calculate a complete set of control strip data in under a minute, saving you time and virtually eliminating data-taking errors. The 390 easily interfaces with quality control software such as x-Read QC Analysis software.

#### Easy to Use

The 390 automatically reads, calculates, stores, and displays data. With the push of a button, you can view the measurements just taken.

### 391 Densitometer

#### Performance Features

The 391 includes all of the capabilities of the 390 and automatically establishes **aim values and control limits, calculates cross-over values, and plots monthly control charts** – freeing the technologist to focus on patient care. Thirty-one daily readings for up to twelve processors can be stored in the internal memory. Networking capabilities of the 391 enable facilities with multiple processor sites to communicate processor quality control information across phone lines.

#### Easy to Use

The 391 reads and stores densities in less time than it takes to measure manually. Immediately after completing a measurement, the 391 displays the 21 density readings in addition to QC parameters, such as base plus fog, speed, contrast index, average gradient, D-Max, and gamma.

### x-Read QC Analysis Software

#### Performance Features

x-Read, from Medical Cost Containment Consultants, Inc., sets standards and user-defined high/low allowances for each processor. Create history graphs, store unlimited number of readings, and monitor an unlimited number of processors.

#### Specifications

Windows 95, 98, 2000, or NT compatible. Connects to X-Rite 390, 391, 380, and 381 densitometers.

Sensitometers and densitometers work in tandem. Sensitometers imprint a standard set of exposures on a photographic or x-ray film sample. When the film sample is developed, a densitometer is used to read the optical density of the exposures and chart a profile against a known set of standards. This profile alerts you to fluctuations in processing conditions and allows you to take corrective action.

## Functional Performance Specifications

### 396 Sensitometer

#### Exposure Stability

±.02 log exposure per year

#### Unit to Unit Repeatability

±.02 log exposure

#### Temperature Sensitivity

±.02 log exposure from 15° C; (59°F) to 30°C (86°F)

#### Power Requirement

9 volt alkaline battery (included)  
approx. 10,000 exposures/battery

#### Light Modulation

21-step Wedge, 0.15D per step

#### Blue Color Peak Wavelength

455nm ± 10nm

#### Green Color Peak Wavelength

512nm ± 10nm

#### Warm-Up Time

None

#### Exposure Time

.1 second typical regulated  
by light accumulation system

#### Recycle Time

2 seconds

#### Physical Dimensions

2.3" H (5.84cm)  
3.75" W (9.50cm)  
7.0" L (17.78cm)

#### Weight

.9 lbs. (410g)

#### Features

DIN V 6868-55

### 301 Densitometer

#### Measuring Range

0-5.0D with 2 and 3mm apertures  
0-4.0D with 1mm aperture

#### Accuracy

±.02D

#### Repeatability

±.01D

#### Operating Temperature Range

10° - 40°C 50° - 104°F

#### Power Requirements

301 (Domestic): 100-130VAC, 60Hz  
301X (Export): 200-240VAC,  
50Hz (80VA max.)

#### Warm-Up Time

60 seconds

#### Scale Factor (slope) Stability

±1% per 6 months

#### Null Drift

± .03D max.  
± .01D typical

#### Options

301X – 230V, 50Hz power line  
301RS – RS-232 serial  
output – 300 baud

#### Physical Dimensions

5.25" H (13.3cm)  
10.25" W (26.0cm)  
15.0" L (38.0cm)

#### Weight

8.5lbs (3.9kg)

### 331C Densitometer

#### Measuring Range

0-3.5D (1mm) 0-4.0D (2mm)

#### Accuracy

±.02D

#### Repeatability

±.01D

#### Operating Temperature Range

10° - 40°C 50° - 104°F

#### Power Requirements

100-240V ~ 50/60Hz

#### Warm-Up Time

None

#### Scale Factor (slope) Stability

±1% per 6 months

#### Zero Stability per 8 hours

±.02D (.01 typical)

#### Measuring Area

1 & 2 mm

#### Measuring Length

5.5 inches

#### Power Supply

Four rechargeable AA NiMH batteries  
(P/N#SE15-43) and charger  
(P/N#SE30-77)

#### Physical Dimensions

2.0" H (5.08cm)  
2.9" W (7.46cm)  
7.0" L (17.78cm)

#### Weight

1.5lbs (680g)

### 390/391 Densitometer

#### Measuring Range

0-4.5D

#### Accuracy

±.02D (0-3.0D) ±2% (3.0-3.4D)

#### Repeatability

±.01D (0-3.0D), ±1% (3.01-3.5D),  
±2% (3.51-4.0D)

#### Operating Temperature Range

10° - 40°C 50° - 104°F

#### Power Requirements

12V DC, Universal 100-240VAC  
adapter; 50/60 Hz P/N SE30-77

#### Spectral Response

ANSI Visual

#### Reading Speed

1.2 inches per second

#### Accessories

Operation manual, AC adapter,  
cable and interface adapter.

#### Data Storage

12 Channels / 31 readings  
per channel (391)  
4 Channels / 1 reading  
per channel (390)

#### Features (391 Only)

Aim Value Editor  
Control Limit Editor

#### Physical Dimensions

2.8" H (7.1cm)  
7.2" W (18.3cm)  
6" L (15cm)

#### Weight

2.5lbs (1.14kg)

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