

SRP ORBITER High Quality SPECT and Planar Nuclear Medicine Studies

The ORBITER™ is ideally suited to perform (with suitable options/accessories) high quality static, dynamic, general purpose planar, SPECT, cardiac and whole body SPECT evaluations while maintaining maximum patient throughput.

The ORBITER consists of a single, high-resolution, circular field-of-view (FOV) detector, a universal stand with counterbalanced detector yoke, a Digital Operator's Terminal (DOT), a motorized ECT patient bed with pallet for SPECT, and a wide choice of optional collimators and other accessories, including ICON™ processing workstations.

Choice of Configurations

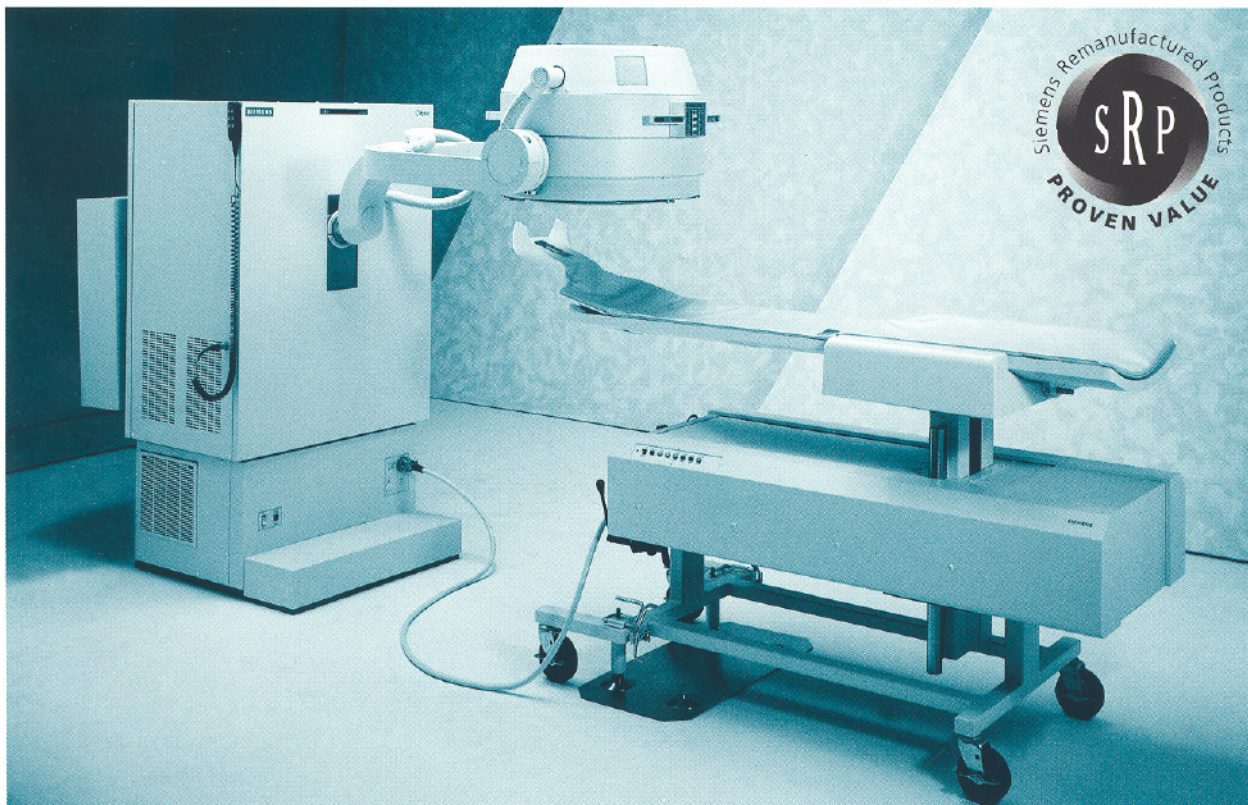
The ORBITER can be configured in a variety of ways to meet the unique demands of today's Nuclear Medicine departments.

Choice of two detectors:

- 37 or 75 photomultiplier tubes (PMT's)

Processing workstation options:

- ICON™ Macintosh Quadra® 950
- ICONP PC 8100
- ICONP PC 8600
- ICONP G3



SRP ORBITER

Features and Specifications

Detector

ZLC/DIGITRAC Detector

- The ZLC®/DIGITRAC® detector electronics eliminate the systematic causes of nonuniformity by correcting energy output and restoring linearity. Removal of intrinsic spatial distortion without arbitrarily adding or subtracting counts improves image clarity.
- DIGITRAC microprocessor circuit ensures that PMT's are continually kept in tune.
- Field-of-View (FOV)
38.7 cm (15.25 in.) with parallel hole collimator.

Photomultiplier Tubes

- 37, 7.62 cm (3 in.) diameter in ORBITER 37.
- 75, 5.08 cm (2 in.) diameter in ORBITER 75.

Shielding

- Except for the crystal face, the front, back and sides of the detector assembly are adequately shielded.

Photopeak Energy Range

- Electronic processor range is 50 to 511 keV.

NEMA Performance Measurements

<i>Spatial Resolution</i>	<i>37 Tubes</i>	<i>75 Tubes</i>
FWHM in CFOV	≤4.67 mm	≤3.79 mm
FWHM in UFOV	≤4.78 mm	≤3.89 mm
FWTM in CFOV	≤8.88 mm	≤7.16 mm
FWTM in UFOV	≤9.09 mm	≤7.36 mm

Spatial Linearity

Differential in CFOV	≤0.25 mm	≤0.25 mm
Differential in UFOV	≤0.30 mm	≤0.30 mm
Absolute in CFOV	≤0.50 mm	≤0.50 mm
Absolute in UFOV	≤0.90 mm	≤0.90 mm

Flood Field Uniformity

Differential in CFOV	≤3.30%	≤3.30%
Differential in UFOV	≤4.30%	≤4.30%
Integral in CFOV	≤2.50%	≤2.50%
Integral in UFOV	≤3.00%	≤3.00%

Intrinsic Energy Resolution

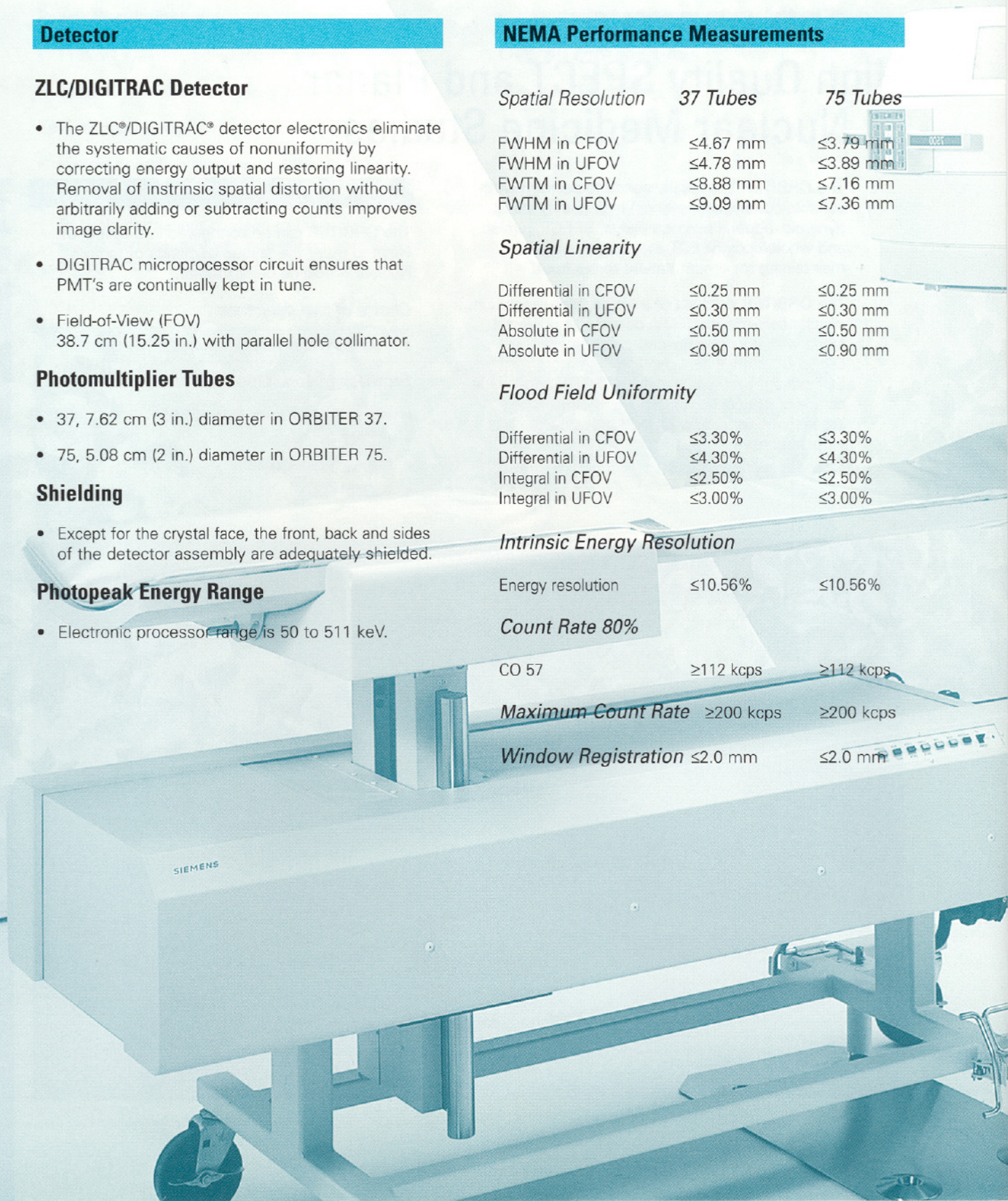
Energy resolution	≤10.56%	≤10.56%
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Count Rate 80%

CO 57	≥112 kcps	≥112 kcps
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<i>Maximum Count Rate</i>	≥200 kcps	≥200 kcps
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<i>Window Registration</i>	≤2.0 mm	≤2.0 mm
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Detector Gantry

Yoke Orbit

- Yoke can be orbited electromechanically at an approximate speed of either 4° or 0.9° per second.
- Maximum orbit is 365° clockwise and 90° counterclockwise.

Detector Rotation

- 300° with low-energy collimator.
- 280° with medium-energy collimator.
- Rotation is locked mechanically.
- Detector remains balanced with all types of collimators.

Stand Pivot

- The stand and detector can be pivoted manually around the gantry base $\pm 90^\circ$.

Sagittal Reach

- Maximum sagittal reach is approximately 107 cm (42.2 in.).

DOT Acquisition Terminal

- Digital Operator's Terminal (DOT) provides termination of study at preset time, counts or number of frames and information density control.
- Digital persistence (P-scope) controls and monitors DIGITRAC's functions, using up to 16 sets of user-defined study protocols stored in memory.

Digital Operator's Terminal

Compact System Design

Physical, Environmental and Power Data

Weight

- Without collimators, 1,452 kg. (3,209 lbs.).

Power Requirements

- 115VAC +/- 10%, 50/60 Hz, 12 amperes
- 250VAC +/- 10%, 50/60 Hz, 6 amperes

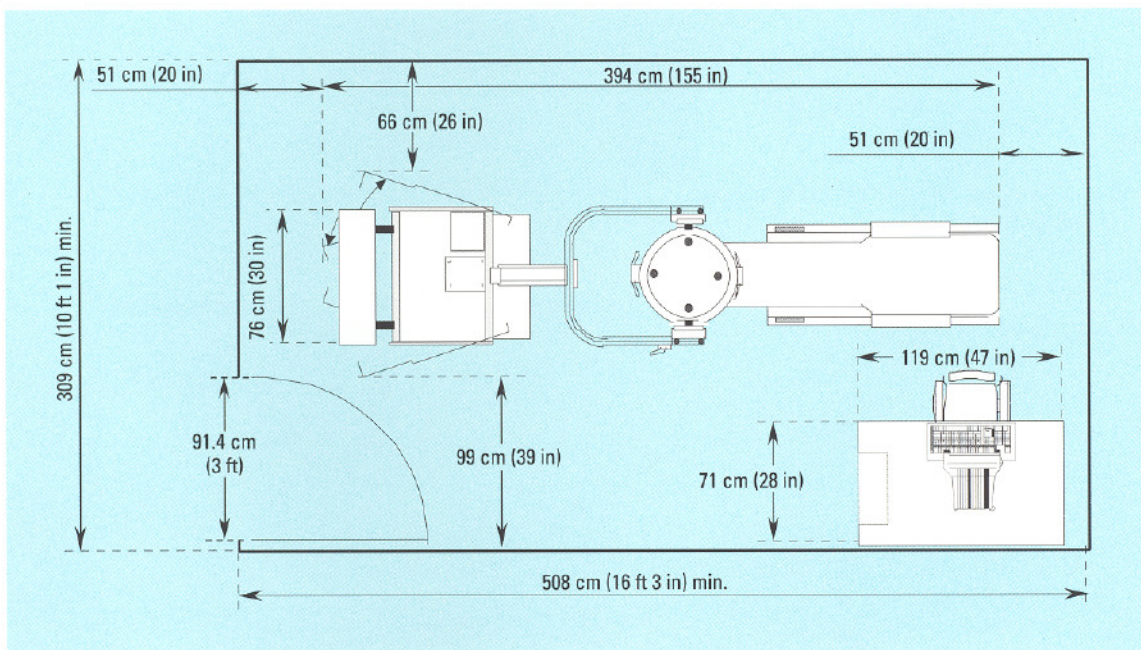
Environment Requirement

- Normal operation requires an ambient temperature range of 10° to 26°C (50° to 80°F) with a relative noncondensing humidity between 35% and 80%. To avoid permanent damage to the scintillation crystal, temperature variance during operation or storage must not exceed 4.4° C (8° F) per hour.

- A separate dedicated power line is recommended.
- Heat dissipation is approximately 2,000 BTU's/hour.

Overall Dimensions

Shown in the drawing.



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