

## PROFILER™ Therapy Beam Analyzer

The PROFILER™ is a multipurpose quality assurance tool for use with any therapy accelerator. It consists of a high resolution linear array of 46 solid-state detectors. An optional module doubles the size of the array for large fields.

With multiple profile intercomparison and analysis, an initial reference profile is captured and saved. At a later date another profile measurement is made under the same conditions (beam energy, field size, etc.). The two profiles are normalized and intercompared to identify differences. The net profile is displayed graphically, which enhances minor differences in beam energy and beam steering.

Reference profile analysis can be applied to the intercomparison of the current beam and a profile stored at the time of dosimetry measurements. The analysis can be used to intercompare past and current dynamic wedge and multileaf collimator profiles.

Profile intercomparison can be used to adjust a beam to match a past profile. The stored reference profile can be displayed along with a real-time profile of the current beam. In this way, the effect of adjustments to the current beam can be observed and compared to the reference profile in real time.

### The PROFILER™ system consists of the following:

- ▶ Modular linear detector array
- ▶ Two 2 cm and one 1 cm acrylic buildup plates
- ▶ One 25-meter power/data interface cable
- ▶ PC software designed to operate with Windows®
- ▶ Carrying case with space for laptop computer

### System requirements:

COMPUTER: 386 or higher, 3.5 in FDD, 4 Mb RAM

(Profiler requires 2 Mb when installed)

OPERATING SYSTEM: Windows® 3.1 or higher



### Features:

- ▶ Linear array of 46 solid-state detectors offers high resolution
- ▶ Real-time display of beam profiles on PC monitor
- ▶ Profile integration analysis, including both static and dynamic wedge angle calculations
- ▶ Can be mounted to therapy head for measurements at any angle
- ▶ Displays penumbra
- ▶ Performs multiple profile intercomparison and analysis

### Specifications

Detectors:	.....	proprietary solid-state, 46 per array
Array length:	.....	22.5 cm
Detector spacing:	.....	5 mm along linear array
Radiation measured:	.....	Photons: 60 Co to 25 MV Electrons: 6-25 MeV
Beam limits:	.....	7.7 mGy per pulse, 1000 pps repetition rate
Inherent buildup:	.....	0.9 cm acrylic
Inherent backscatter:	.....	2.3 cm acrylic
Time constant:	.....	<10 microseconds
Scan time:	.....	150 microseconds
Scan frequency:	.....	6600 scans per second
A/D converter:	.....	bi-polar, 12 bit
Gain:	.....	binary, 1, 2, 4, 8, 16, 32, 64, 128, 256
Light field alignment:	.....	10 x 10, 15 x 15, 20 x 20 cm
Leveling:	.....	planar bubble level with two adjustment feet
Data link:	.....	RS-232 serial port from interface to computer
Power:	.....	115/230 V switchable power converter
Array dimensions:	.....	25 cm x 40 cm x 4 cm (10 x 15.75 x 1.6 in)
Weight:	.....	4 kg (9 lbs)

### Accessories:

Model 117000-1	.....	Gantry attachment
Model 117000-2	.....	Array Extension - for additional 46 channels
Model 117000-3	.....	Motor drive assembly - stepper motor drive for two-dimensional radiation beam data collection