

# • Specifications



Dose Range	10 Gy–200 kGy
Dosimeter Type	Alanine tape tab or Pellet
Dosimeter Holder Type	Tape tab holder or Pellet holder
Internal Barcode Reader	Standard
Automatic Sample Eject	Optional
Measurement Time	5–20 sec. (depending on dose)
Typical Measurement Reproducibility	± 1% (30 kGy film dosimeter, i.e., instrument error only)
Typical Measurement Repeatability	± 0.5% (30 kGy film dosimeter, i.e., instrument error only)
Data System I/O	USB Port to (standard) PC or (optional) Laptop (Windows XP™)
e-scan Software	21 CFR part 11 compliant
Power Requirements	100–250 VAC
Dimensions	Magnet: 31 x 30 x 30 cm Electronics: 35 x 50 x 16 cm
Weight	Magnet 42 kg Electronics 15 kg
Certification	Manufactured under ISO 9001 guidelines, CE certified



## e-scan

- Alanine Dosimetry System

# • Why use the e-scan?

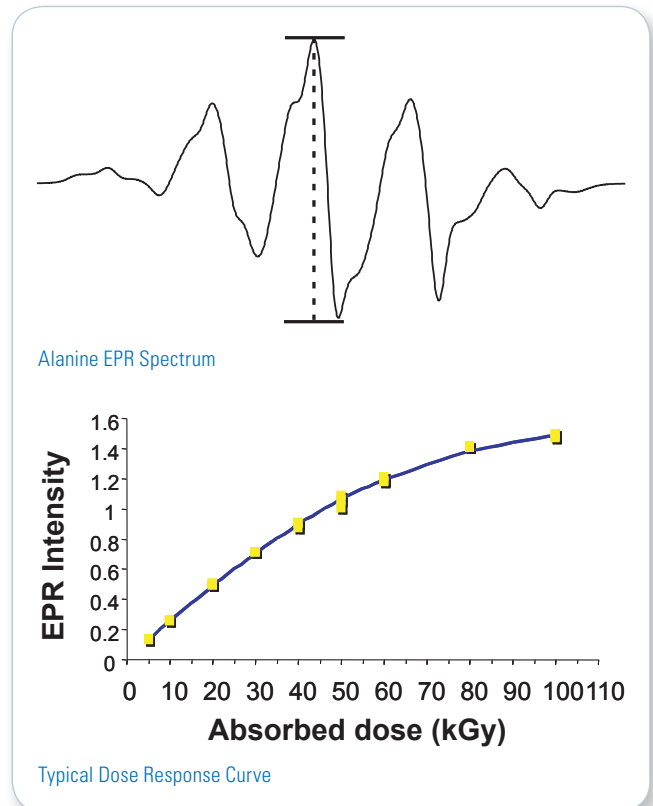
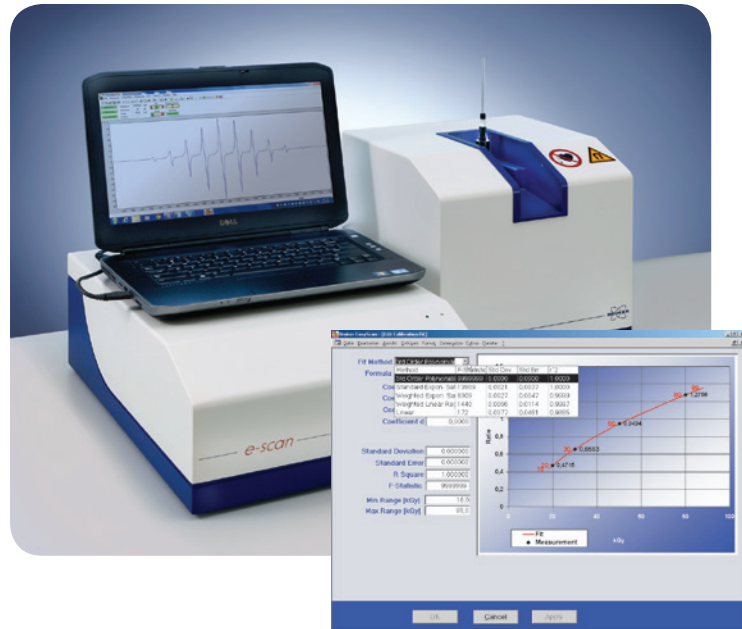
- Superior accuracy
- Energy and dose rate independent
- Large calibration range
- Simple, rapid measurements
- 21 CFR part 11 compliant software
- Compatible with ISO/ASTM 51607

## Alanine Dosimetry

Bruker manufactures a complete quality control dosimetry system that combines the e-scan™ alanine dosimeter reader with tape tab or pellet dosimeters. The e-scan is an easy-to-use benchtop EPR spectrometer that provides rapid, accurate dose measurement from either alanine film or pellet dosimeters. The bar coded tape tab dosimeters and e-scan holders allow the automation of several routing functions (i.e., sample/batch identification, sample position and measurement initiation).

EPR (Electron Paramagnetic Resonance, also known as ESR) has long been used as a quantitative tool to study the effects of radiation. Ionizing radiation produces free radicals in many forms of matter that can be quantitatively detected by an EPR spectrometer. The EPR spectrometer works by measuring energy level transitions of unpaired (free) electrons at a specific resonant frequency within a variable magnetic field.

Alanine forms a very stable free radical when subjected to ionizing radiation. The alanine free radical yields an EPR signal that is dose dependent, yet is independent of the dose rate, energy type, and is relatively insensitive to temperature and humidity. Thus, alanine dosimetry is equally suited to Gamma, E-beam, or X-ray irradiation facilities. Alanine dosimeters are available as tape tabs or pellets depending on your application.

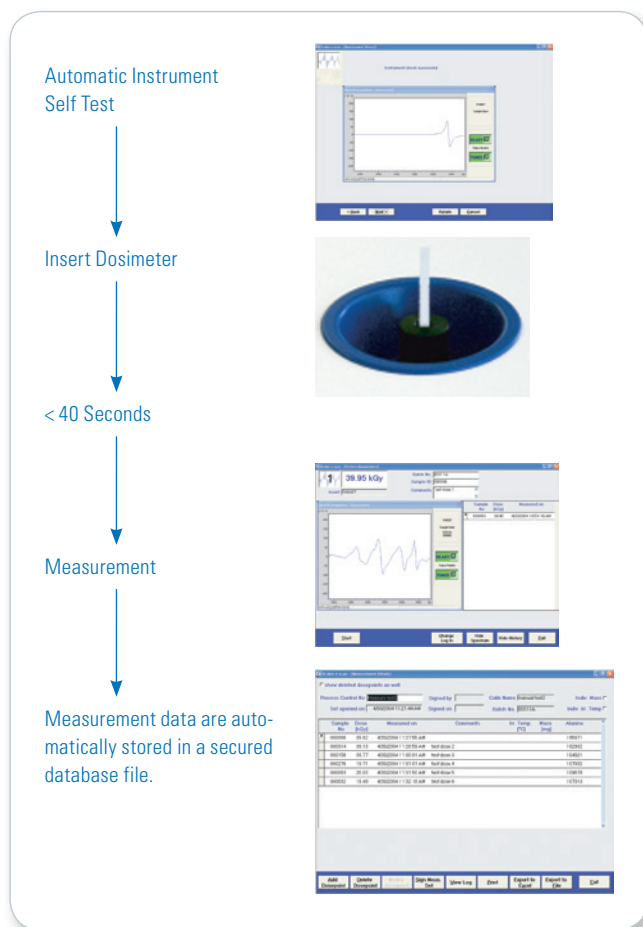


# • Rapid, Secure Dose Determination

The e-scan provides a simple automated routine for measuring either alanine film or pellet dosimeters. The e-scan software is simple and intuitive, yet comprehensive and secure.

## Automated features include:

- Instrument self testing - IQ/OQ/PQ validation
- Instrument status logging - audit trail
- Bar coded sample holder verifies dose range
- Auto-detection of tape tab dosimeters
- Calibration coefficient calculation
- Dose calculation
- Secured data storage in Access™ data base file



## Fast and Simple

The e-scan measurement routine is simple, fast and minimizes decision making for routine operators.

1. Click start to begin measurement.
2. Instrument check is performed.
3. Insert dosimeter and enter sample name.
4. Dosimeter is measured and the dose calculated.
5. The dose results are automatically stored in a secured Access data-base file.

## Alanine dosimeters

The e-scan provides outstanding performance over the entire range for alanine dosimetry. Special dosimeter holders (patents pending) are tailored to fit either alanine tape tab or pellet dosimeters.

The dosimeter holder and associated dose range are recognized by the e-scan software which allows critical instrument parameters and dosimeter calibration coefficients to be automatically set for the routine operator. Individually wrapped, bar code labeled tape tab dosimeters provide automatic sample identification and archiving.

After inserting the tape tab dosimeter into the e-scan, the sample information is recorded by the bar code reader and the measurement is automatically initiated.



Bar coded dosimeters



Alanine pellets