# Delta4 Phantom Plus

**THE WIRELESS PHANTOM**
**PERFORM ACCURATE PATIENT QA IN LESS TIME THAN EVER!**

## Confidence in complex treatments

Modern radiation therapy uses complex plans with techniques such as IMRT, VMAT and Tomotherapy. A single plan can consist of more than a hundred control points and include MLC leaf movements, gantry and collimator angle rotations etc. in order to produce steep dose gradients within the patient.

To keep up with increasing complexity, a thorough verification of treatment plans is paramount for clinics to treat each patient with confidence and accuracy. For this purpose it is necessary to independently verify:

- The TPS dose
- The transfer of data from TPS to the delivery system
- The performance of the delivery system
- The relationship of the delivered dose to the target and OAR's

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## Fast and accurate QA with Delta4 Phantom+

The new wireless Delta4 Phantom+ provides fast and accurate dose verification for your advanced treatment plans.

**Fast set-up.** The phantom is easily transferred to the treatment couch with the Delta4 Trolley. You never have to lift the phantom!

**Alignment** is easily done in seconds with clear markers on the phantom that allow you to accurately position the Delta4 Phantom+ in 6 dimensions.

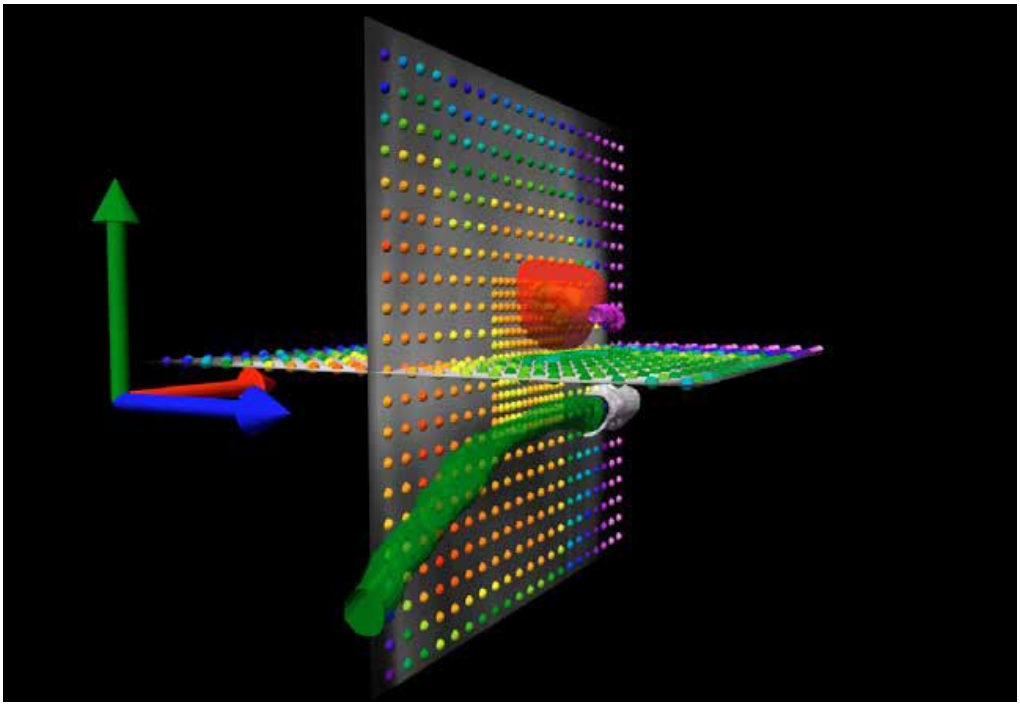
**Instantly ready for measurement.** The Delta4 Phantom+ transfers data via Wi-Fi and it is battery powered. There are no cable connections. Just turn on the power and you are ready to measure.

**Measure where it really matters.** The patented detector configuration with two orthogonal detector planes provides real measurements in the isocentric target region.

**Instant pass/fail analysis.** Since measurements are made in the target, the relevant dose is instantly available when the irradiation has been delivered. The delivered dose is instantly compared with the planned dose and analyzed against your pass/fail criteria.

**Independent Gantry angle verification.** An inclinometer gives you independent verification that the beams are delivered from the right angles.

**Machine QA.** In addition to patient QA the Delta4 Phantom+ can perform checks of the beam constancy and the MLC performance.



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## Unique detector configuration

- Isocentric measurements in two orthogonal detector planes
- Merge large fields up to 38 cm longitudinal
- Resolution 5 mm at isocenter, can be increased to 2.5 by merging

## Superior ScandiDos detector

- Long term stable, detectors, eliminates re-calibration of relative sensitivity
- Isotropic response
- FFF compatible


## Wireless

- Fastest set-up time
- Wireless communication (Wi-Fi)
- Battery operated

## Easy levelling

- Levelling with 3 or 4 point adjustment

## Quick and easy set-up

The ergonomic Delta4 Phantom+ Trolley eliminates all lifting when transferring the phantom from the Trolley to the couch. The set-up and alignment of the phantom is done within seconds. Furthermore, the Trolley serves as a neat and compact roll-and-store platform for the phantom.

## Absolute measurement

- Quick and accurate absolute dose verification
- Ion chamber measurements can also be performed in the same phantom

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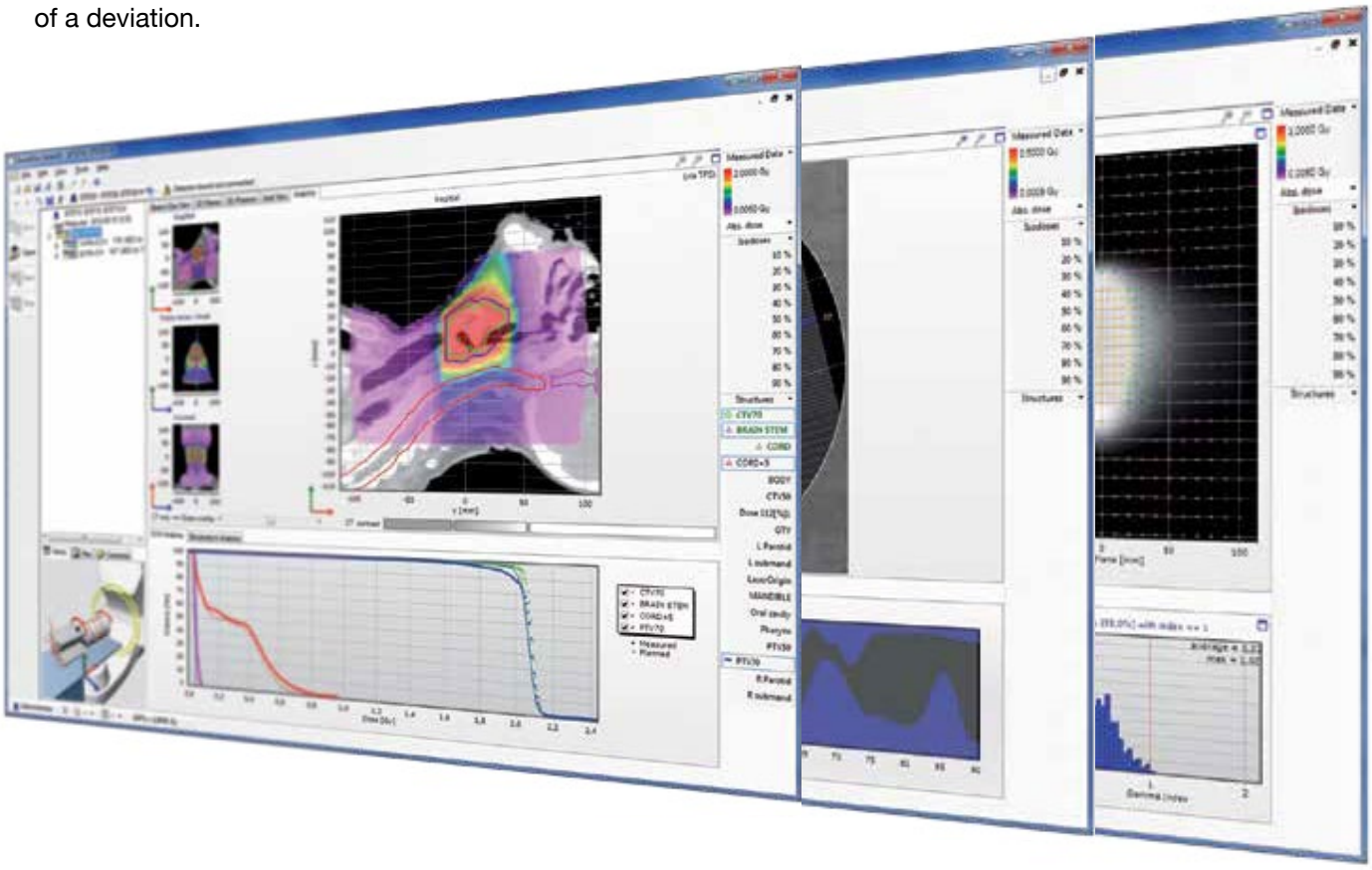
## Intuitive and loaded with analysis tools

**Integrated in the workflow**
The Delta4 software is known for its integration in the clinical workflow. TPS plans are easily imported together with TPS dose and structures.

**Intuitive**
The genuinely intuitive software decreases your learning curve. You can easily navigate between patients, measurements and analysis and all the information you need is just a click away. The QA analysis is performed automatically as soon as the dose has been delivered instantly indicating pass or fail.

**Instant**
Your QA results, including dose deviation, distance to agreement (DTA) and gamma index, are instantly available without any further processing and QA reports are easily customized to your specific needs.

**Powerful analysis**
With unique 4D measurements you also have the data to analyze the delivered dose for fraction, beam arc or control point.
The delivered 4D dose can also be analyzed in the patient anatomy. The Delta4DVH suite of software modules provides unique analysis tools to find the clinical significance of a deviation.



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## Technical specification

### Cylinder phantom

| | |
|---|---|
| Material | PMMA; optional Plastic Water DT® |
| Diameter | 22 cm |
| Length | 40 cm |
| Ion chamber insert in cylinder | Inserts for common cylindrical ion chambers available |

### Detectors

| | |
|---|---|
| Type | p-Si |
| Total number | 1069 |
| Layout | Distributed on coronal and sagittal plane |
| Max field size | 20 x 38 $cm^2$ (with merger of two consecutive measurements, otherwise 20 x 20 $cm^2$) |
| Distance between detectors | |
| Central area (6 x 6cm2) | 5 mm (or 2.5mm in longitudinal direction with merger of two consecutive measurements) |
| Outer area | 10 mm |
| Size (radial x axial) | 1 x 0.05 $mm^3$ = 0,00004 $cm^3$ |
| Detector stability (6MV beam) | Better than 0.1% per kGy, typically 0.04%/kGy |

### Size and weight

| | |
|---|---|
| Total length | 71cm |
| Total weight | 27kg |

### Compatibility

| | |
|---|---|
| Modalities | Photon beams, with and without flattening filter |
| Treatment Plan import | Any Treatment Planning system that can export DICOM RT Plan and RT Dose, Structure |

### Wireless Communication

| | |
|---|---|
| Wireless data communication protocol | Wi-Fi 802.11n |
| Battery operational capacity | >4 hours<br>Rechargeable Li-ion battery – Power supply for charging included |

Technical specifications are subject to change without notice