

Visualise the Future of Lung Function Assessment Testing



The Next Generation of Lung Function Imaging and Assessment Technology

PneumaCare's products provide a deeper level of understanding of respiratory performance while eliminating many of the restrictions imposed by current technologies that prevent patient measurement.



With breakthrough technology integrated into an easy to operate platform, PneumaCare's products provides the clinician with the following advantages:

- 3D data output with measurement of regional chest wall and abdomen movement contributions
 - *Providing a better understanding of the nature of the patient's breathing*
- Quantitative measurement parameters of regional breathing symmetries and inspiratory/expiratory ratios
 - *Allowing better tracking of patient progress*
- Regional or user defined location comparison of patient chest wall movement during respiration
 - *Providing direct comparison of specific chest wall excursion for understanding of localised variance*
- Visible light imaging technology
 - *No harmful radiological exposure to patients*
- Non-contact mobile measurement
 - *Aiding in infection control measures and ease of use at patient location*
- Measurement in a seated or supine position
 - *Eliminating the need and added stress of moving the patient to the measurement site or position*
- Expanded patient population measurement capabilities
 - *Reducing the number of patients excluded from respiratory assessments*
- Measurements displayed in real-time
 - *Delivering point-of-care patient management information*
- No disposables or daily calibration
 - *Efficient operating platform and no excess inventory of supplies*
- Low operating costs
 - *Providing overall hospital efficiency in patient care and reducing facility costs*

Visualise patient breathing with PneumaCare's SLP (Structured Light Plethysmography) technology



Understanding your patient's respiratory functions from tidal breathing and in real-time.

Quantifying HOW the patient's breathing is produced through regional movement and tracking this over time.

Obtaining respiratory assessment data on those patients that cannot be measured today.

PneumaCare provides clinicians with **unique non-invasive ways of observing active, real-time regional respiratory function** via movement of the chest wall; delivered from a portable, **non-contact** measurement platform. Our products address the need for **economic and accessible imaging information, post-operative assessments and intensive care monitoring in previously inaccessible groups.**

A revolutionary advance in respiratory assessment, PneumaCare's proprietary SLP measurement technologies capture real-time functional images of chest wall movement, allowing for a better understanding of patient respiration parameters. This detailed information is translated into quantifiable pulmonary function outputs for use in a range of hospital environments including surgical assessment, Intensive Care and A&E. This breakthrough technology allows measurements to be carried out without physical contact with the patient or subjecting them to unnecessary radiological exposure; opening assessment to the full range of patients from paediatrics to adult, both conscious and unconscious.

Designed with input from clinicians, PneumaCare's SLP technology addresses their needs by focusing on applications that:

Optimise Patient Respiration

- Aid in optimal respiration treatment during patient ventilation (mechanical and non-invasive)
- Ensure efficacy of treatment options by tracking patient progress

Aid in Efficiency of Patient Recovery after Thoracic Surgery

- Identify early onset of postoperative pulmonary complications
- Assist in management of patient in recovery pathway
- Aid in identification of the most beneficial surgical approach

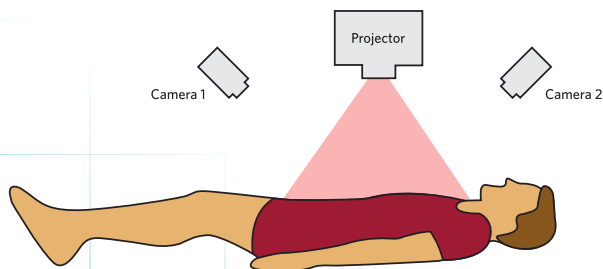
Assist in Screening of Respiratory Diseases

- Reduce misdiagnosis through earlier identification of changes in breathing patterns
- Track disease management over the course of treatment options

Revolutionary Imaging Technology

PneumaCare's vision is to provide revolutionary imaging technologies that increase efficient and effective patient care. Through the development of breakthrough SLP (Structured Light Plethysmography) imaging technologies, PneumaCare is already meeting that vision today.

PneumaCare is able to project a structured image covering the patient's chest and abdomen and record movement. Using PneumaCare's unique SLP software, a 3-dimensional image is then constructed showing regional breathing correlations between the chest and abdomen and between the left and right thoracic hemispheres.



Two cameras observe the subject while a light pattern is projected on the chest and abdomen



Data produced

This recorded image can be replayed for the doctor, in real-time, while allowing the doctor to manipulate the view in the PneumaView™3D output software.

PneumaCare's software stands alone by providing the operator with the ability to divide the image into defined regions for comparison of the patient's symmetry of breathing. These regional contributions can be analysed by comparing the upper chest and abdomen or the left and right sides of the chest; detailing potential asymmetries that are indicative of respiratory-related issues.

- 1 Thoraco-Abdominal Chest Wall Movement
- 2 Regional Movements
- 3 SLP Flow-Volume Loop
- 4 Regional Konno-Mead Plot





PneumaCare's Thora-3Di™ is the flagship product of the PneumaCare family of respiratory imaging and assessment devices.

Utilising the PneumaView™ system operating platform and the PneumaView™3D analysis software, Thora-3Di™ provides clinicians with the first, real-time, non-contact, non-invasive bedside imaging of a patient's respiratory function. By measuring chest wall movement in a non-contact, non-radiological methodology, PneumaCare's Thora-3Di™ provides a detailed, and previously unobtainable, level of patient information displayed in an interactive 3D format. This output allows the clinician to view the regional chest wall movement contributions and analyse these for unexpected asymmetries due to respiratory-related issues. The Thora-3Di™'s mobile design allows it to be quickly setup anywhere in the hospital, from the clinic to a patient's bedside, to gather recordable data for use in acute and longitudinal patient assessment.

PneumaCare's Thora-3Di™ is comprised of the Thora-3Di™ scanning head, portable rolling stand (with touch control screen and independent power supply), the PneumaView™ system operating platform and the PneumaView™ 3D analysis software.



Thora-3Di™ Scanning Head

| | |
|-----|--------------------------|
| 4KG | W 55CM X L 15CM X H 15CM |
|-----|--------------------------|

Thora-3Di™ Portable Stand

| | |
|-------|---------------------------|
| 120KG | W 60CM X L 90CM X H 150CM |
|-------|---------------------------|

Thora-3Di™ Power Supply

| | |
|---------------|---------------------------------------|
| MAINS VOLTAGE | 100V AC TO 240V AC, 50 TO 60HZ |
| POWER INPUT | 18V DC/ 4.5A |
| BATTERY PACK | 12 VDC OUTPUT 110VAC OR 220VAC (6.0A) |

Thora-3Di™ Instrument Controller System

| | |
|-------------------------|---------------------------|
| PROCESSOR INTEL CORE I5 | 3GHZ, 1333MHZ, 6MB |
| HARD DRIVE SPACE | 500GB |
| MEMORY | 4GB |
| OPERATING SYSTEM | WINDOWS™ 7 PROFESSIONAL |
| PNEUMAVIEW™ | SYSTEM OPERATING PLATFORM |
| PNEUMAVIEW™3D | DATA ANALYSIS SOFTWARE |

Thora-3Di™ System Specifications – Environmental

| | |
|-----------------------|-----------------|
| OPERATING TEMPERATURE | +10C TO +34C |
| REL. HUMIDITY | 30 TO 75% RH |
| AMBIENT PRESSURE | 700 TO 1060 HPA |

Thora-3Di™ System Specifications – Compliance

| | |
|-------------------------------------|--------------------------------------------|
| EMC COMPLIANCE | EN60601-1-2, CLASS B |
| EQUIPMENT CLASSIFICATION | EN60601-1-1 (PROTECTION CLASS I) |
| CATEGORY ACCORDING TO MDD 93/42/EEC | COMPLETE SYSTEM: CLASS IIA MEDICAL PRODUCT |





Thora-3Di™ Compact

PneumaCare's Thora-3Di™ Compact has the same operating system as the full size Thora-3Di™.

The unit can be easily assembled and dismantled by one person and transported in the back of a standard sized vehicle.

The Thora-3Di™ Compact operates on mains supply. This product is ideal for use in Clinics and remote locations, such as Community Health Centre's with seated patients.

Thora-3Di™ Compact

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|------|---------------------------------|
| 23KG | (MAX) W 75CM X L 90CM X H 121CM |
|------|---------------------------------|

Thora-3Di™ Compact Scanning Head

| | |
|-----|--------------------------|
| 4KG | W 55CM X L 15CM X H 15CM |
|-----|--------------------------|

Thora-3Di™ Compact Power Supply

| | |
|---------------|--------------------------------|
| MAINS VOLTAGE | 100V AC TO 240V AC, 50 TO 60HZ |
| POWER INPUT | 18V DC/ 4.5A |

Thora-3Di™ Compact Instrument Controller System

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|-------------------------|---------------------------|
| PROCESSOR INTEL CORE I5 | 3GHZ, 1333MHZ, 6MB |
| HARD DRIVE SPACE | 500GB |
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| OPERATING SYSTEM | WINDOWS™ 7 PROFESSIONAL |
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Thora-3Di™ Compact System Specifications – Compliance

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| CATEGORY ACCORDING TO MDD 93/42/EEC | COMPLETE SYSTEM: CLASS IIA MEDICAL PRODUCT |





Thora-3Di™ Infant Imaging Head

PneumaCare's latest product in its range of non-invasive respiratory assessment and monitoring devices has been designed with paediatric patients in mind.

Similar to the Thora-3Di™ adult imaging product, the unit employs white light for respiratory assessment and is totally safe.

The infant imaging head is mounted on a fully flexible stand for use with patients on a bed. The product requires minimal patient cooperation.

Offering all the features of the Thora-3Di™ product for newborn babies and up to 3 years of age.

PneumaCare's Thora-3Di™ Infant Imaging Head has been designed with paediatric patients in mind and offers all the features of the Thora-3Di™ product for newborn babies and up to 3 years of age.





PneumaCare is a Cambridge (UK) based company, developing and marketing revolutionary non-contact, non-invasive respiratory imaging systems that allow the clinician to better understand respiratory function.

The PneumaCare Thora-3Di™ is an imaging and assessment instrument, utilising novel non-contact, non-invasive 3D-imaging technology. This breakthrough in patient care is presently operating in a range of global hospital environments from paediatrics through to surgical assessment and adult intensive care. This includes asthma, mechanical ventilation, NIV and cardio-thoracic surgery.



FDA 510 (K) Approved



For more information about PneumaCare's products and technologies, please contact us at:

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