

Patients are at the heart of what we do

The amazing new

BioScan *touch i8* - nano

First Noninvasive Monitor for Preterm - Neonatal and Pediatric



Body Composition Monitor



MALTRON
Your health our vision

BioScan *touch i8* - nano

The world's first noninvasive monitor calibrated for gestational age 23 weeks to 18 years

Invasive Procedures are risky procedures that can lead to infections and complications.

Neonates may experience over 200 painful procedures, during the first 14 days of life and as many as 51 painful procedures per day¹

Do you know which of your Preterm, Neonatal and Pediatric patients are at risk of:

- Fluid Overload, Dehydration both in the Cellular and Vascular Compartments
- Malnutrition
- Increase in Fat Mass
- Loss of Muscle Mass
- Electrolytes Imbalance
- Poor Nutrition
- Renal function
- Incorrect Dry Weight
- Cardiovascular Disease
- Chronic disease

¹Reference
Dr Laura Harrison Reducing Procedural Pain in Neonates. 2022



Infant complications are one of the leading causes of death globally.



How does it work?

The use of multiple innovative technologies of BIA, FDSA and AI allows the **BioScan touch i8** to perform combinations of unique assessments.

Total of four or eight electrodes (on hands and feet) are applied.

Electrode cables are clipped to the electrodes and connected to the **BioScan touch i8**. Patient data for example Height, Weight, Age, Ethnicity is entered into the BioScan.

Once the input of the data is completed, commence the test.

Impedance

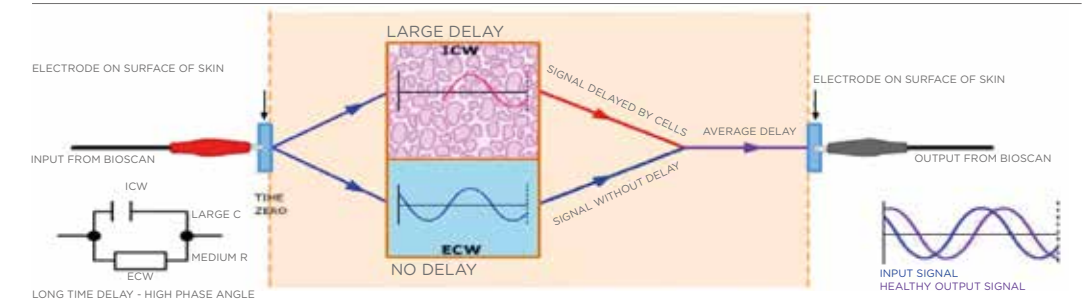
The Impedance (Resistance) and Phase Angle (Reactance) of the body is measured.

A very tiny safe amount of electrical current at different frequencies are applied through the electrodes and transmitted into the body. The voltage is measured via the receiving electrodes. At low frequencies the current passes around the cells and at high frequencies the current will go through the cells.

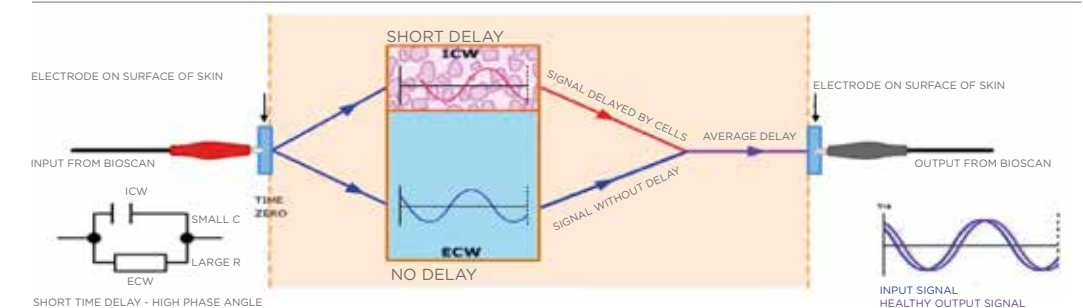
The total testing process is completed in seconds with full analysis of the body.

Phase shift

HEALTHY



UNHEALTHY



Phase Shift is an indicator of good health. The Phase Angle has been found to be an important indicator of mortality and the overall condition of the patient.

The Phase Angle is the ratio of resistance, i.e. resistance, to reactance, the delay of which is caused by healthy cell membranes. Zero (0) degrees indicate that there are no cell membranes at all, 90 degrees is a capacitive circuit consisting of all membranes without liquid.

The Phase Angle of a healthy person is about 6 to 11 degrees. A low Phase Angle indicates cell death or selective permeability of the cell membrane. A high Phase Angle indicates a high reactance and a correspondingly higher amount of body cell mass (BCM), i.e. a good nutritional status.

BioScan *touch i8* - nano

Early detection, early intervention

The accurate assessment of Body Composition and Fluid assessment is vital in healthy and clinical Preterm, Neonatal and Pediatric population.

Early identification of clinical complications in infants could lead to early and timely interventions preventing complications and mortality in newborns.

Babies undergo rapid and complex periods of growth and physical development. Understanding changes in Body Composition and Fluid Status of these patients is essential in order to deliver appropriate therapy.

Evidence suggests Fluid Volume Status, Body Fat, Muscle and Bone play an important role in regulating the whole body energy metabolism.

The assessment of Body Composition and Fluid Status with the **BioScan *touch i8* - nano** provides vital information, this is especially important when assessing malnutrition and metabolic risk in patients with chronic disease.

Assessment of Body Composition is important in day to day routine clinical practise.



Assessment of some key parameters with individualised targets

Body Composition

- Body Fat
- Muscle Mass
- Malnutrition Index
- Body Cell Mass
- Cellular Biomarker (Phase angle)
- Height for age targets
- Weight for age targets
- BMI for age targets
- Bone Density
- Bone Mineral Content
- Fitness Score

Minerals and Electrolytes

- Protein
- Potassium
- Calcium
- Glycogen
- Total Body Mineral Levels

- Pre, Mid & Post assessments
- Kt/v
- UFR

Kidney Function

- GFR

Cellular Hydration

- Over hydration (OH) (Excess Fluid)
- Dehydration
- Dry Weight
- Extracellular Water
- Intracellular Water
- Total Body Water
- Fat Free Mass Hydration
- Hydration targets
- E/I Ratio

Vascular Hydration

- Plasma (IVF version)
- Red Cells (IVF version)
- Hematocrit (IVF version)
- Intravascular (IVF version)
- Extravascular (IVF version)
- Interstitial Fluid (IVF version)
- Historical Data Tracking (IVF version)



BioScan *touch i8* - nano tailored to suit the patient's needs.

Quick | Easy | Accurate | Input data and perform a test

BioScan is an accurate and sensitive method for quantifying subclinical fluid overload in infants and children on dialysis before its clinical manifestation

Malnutrition Index

Malnutrition is a strong predictor of mortality. It is a serious condition in children commonly unrecognised and undertreated. Routine assessment should be performed in all children admitted to hospital.

Intracellular Water and Extracellular Water

Knowing accurate volume status and volume responsiveness is critical. Monitoring changes in the intracellular water and extracellular water is vital.

Fluid Status

Excess fluid is associated with an increase morbidity and mortality. The assessment of volume status is crucial in early management of patients

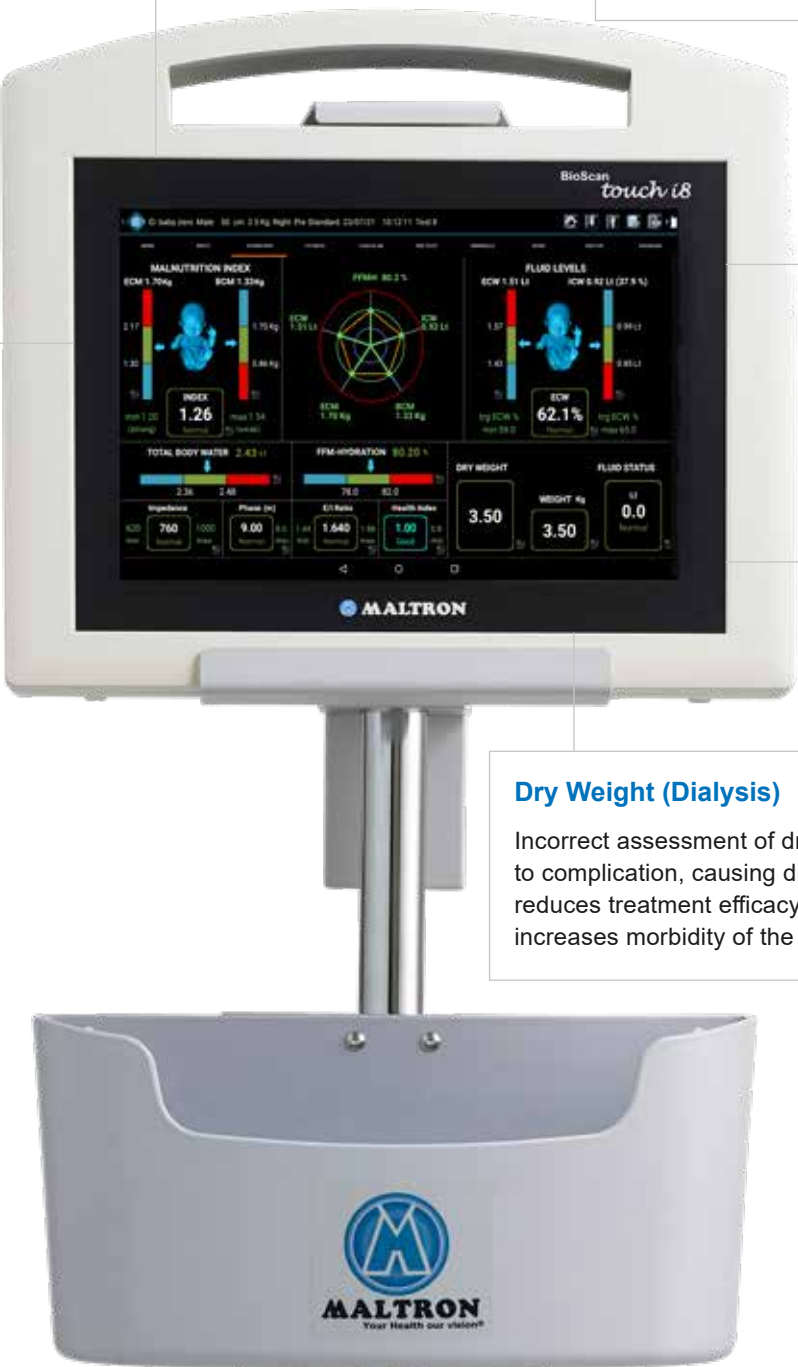
Dry Weight (Dialysis)

Incorrect assessment of dry weight leads to complication, causing discomfort, reduces treatment efficacy and increases morbidity of the patients.

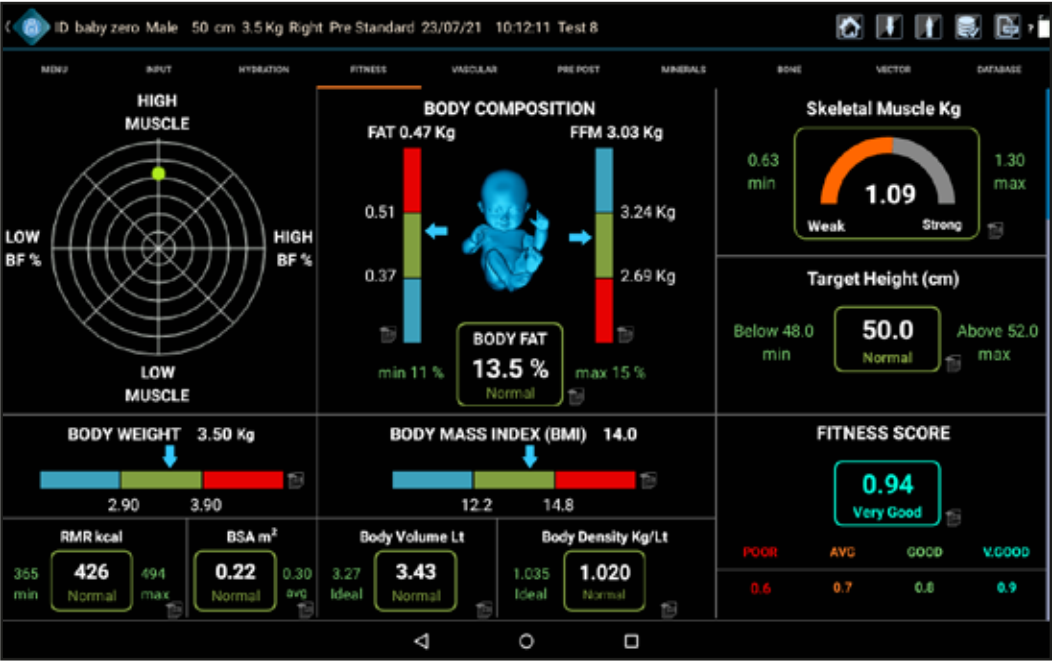
Body Cell Mass (BCM)

BCM is the metabolically active component of the body. Depletion of the body cell mass is associated with wasting.

It is an important measure of nutritional status in children to help determine recovery from malnutrition.



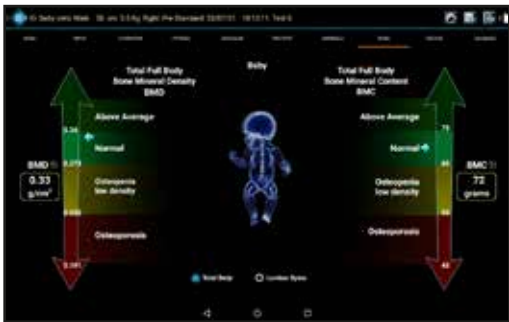
Body Composition screen showing the changes in different parameters



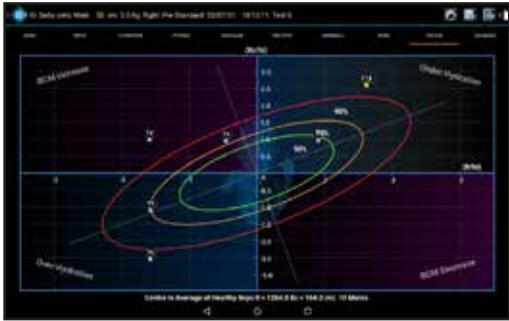
Phase Angle (Cellular Bio-marker)



Total Body Bone Mineral Density and Mineral contents



Vector plot



Body Fat

Obesity and excess weight has significant health issues for children and their families. There can be serious implications for a child's physical and mental health.

Excessive weight gain affects children of all ages and careful consideration of the changes in body composition during growth and development is essential.

Muscle

Skeletal Muscle Mass (SMM) in children is an important component of nutritional assessment and plays an important role in maintenance of normal growth. It is an independent marker of metabolic health. Low muscle mass is associated with metabolic risk.

Phase Angle (Cellular Bio-marker)

Has been shown to be related to health status and is an important indicator of cell integrity. Healthy cellular membrane will lead to higher phase angle whilst decrease in cell integrity will lead to low phase angle.



The only Intravascular and Extravascular monitor for babies

Accurate assessments of Intra and Extravascular fluid status is an important part of perioperative care and necessary for the management of the hemodynamically unstable patient.

Insufficient intravascular volume could lead to decreased oxygen delivery to tissues and organ dysfunction. On the other hand fluid overload can contribute to the development of edema and organ dysfunction, including respiratory failure. The injudicious use of vasopressors and inotropes in the hypovolemic patient can increase the risk of a poor outcome.

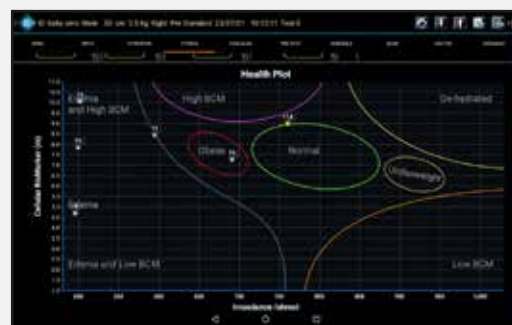
Monitor fluid changes in the Intravascular and Extravascular volume status

Patient trajectory tracking complex changes with every intervention.



Dynamic trajectory shows the volume and directions of changes during clinical intervention

It is a challenging task to monitor and better understand the long-term effects of a treatment. The Dynamic trajectory can help show the effectiveness of the intervention and progress of the disease which provides an essential insight helping to develop new treatments and therapies.



BioScan *touch i8* - nano Non-invasive monitoring of Kidney Function, Minerals and Electrolytes

Glomerular Filtration Rates (GFR)

Obtaining accurate estimates of GFR in infants is challenging

GFR is the best indicator of renal function and is critical for diagnosing acute and chronic kidney impairment. Early intervention could prevent end-stage renal failure.

Accurate assessment of GFR is vital for optimal dosage of medications and assessing progression of renal disease.

Early intervention offers the best chance of preventing ESRD in children, adolescents, and young adults.



Minerals

In infants minerals are essential for optimal growth and development, particularly during the first years of life. They play an important role, supporting everything from the healthy development of your bones, teeth and eyes, to the creation of new cells. Regular assessment is vital.

Electrolytes

Management of fluid and electrolytes is important and challenging. It is uniquely different in low birth weight infants specially in the very premature or critically ill newborn. Monitoring the changes is the key to successful fluid and electrolyte therapy.

Visualise Growth with the BioScan *touch i8* - nano

Growth Score

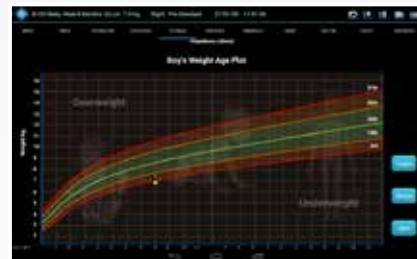
Monitoring and tracking each child's development is vital. Growth charts can help care providers follow a child as they grow.

Early indication - early intervention.

Height for age

BioScan *touch i8* - nano height-for-age reflects attained growth in length at the child's age. This helps identify children who are stunted due to prolonged undernutrition or repeated illness.

Weight for age



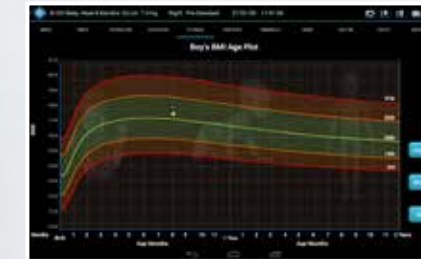
A baby's birth weight is an important marker of health. Very small babies or very large babies are at greater risk of problems.

BioScan *touch i8* - nano weight-for-age reflects body weight relative to the child's age on a given day. This indicator is used to assess whether a child is underweight or severely underweight.

If a child has oedema or fluid retention this increases the child's weight, masking what may actually be very low weight.



BMI for age tables



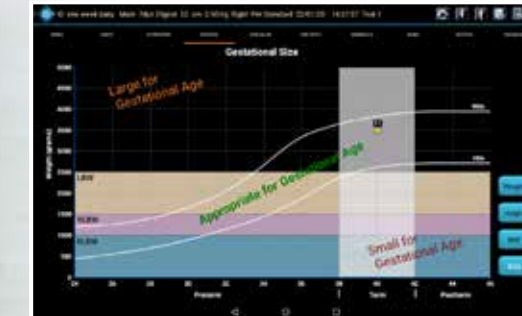
An indicator useful for screening for overweight and obesity.

Body Mass Index (BMI) is used as a screening tool to identify possible weight problems in children.

The amounts of body fat, muscle, and bone change which occurs with age differs between boys and girls.

BMI and BMI-percentile-for-age do not directly measure body fat. Very athletic kids can have a high BMI-for-age due to extra muscle mass, not necessarily excess body fat. As a result, a child may have a high BMI for their age and gender, but to determine if excess fat is a problem, a health care provider would need to perform an assessment using the **BioScan *touch i8* - nano**

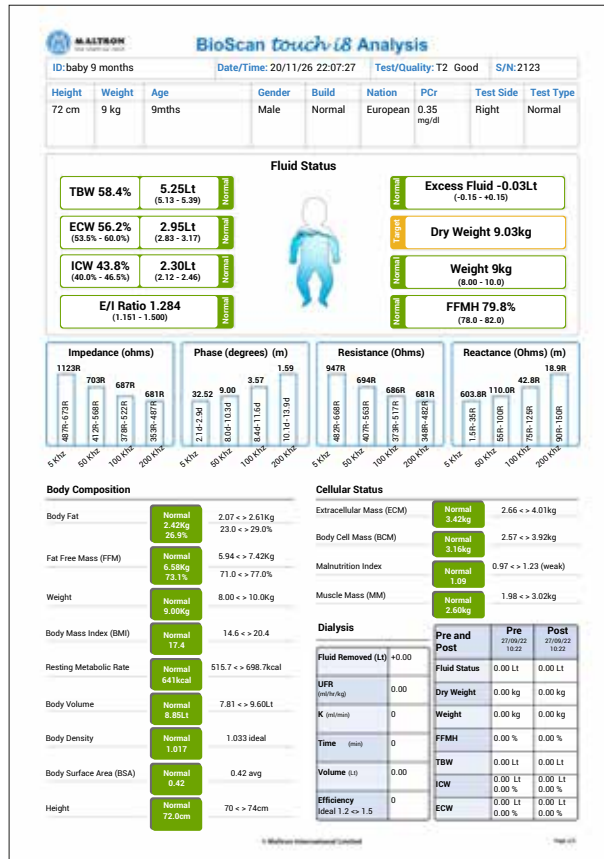
Small for gestational age (SGA)



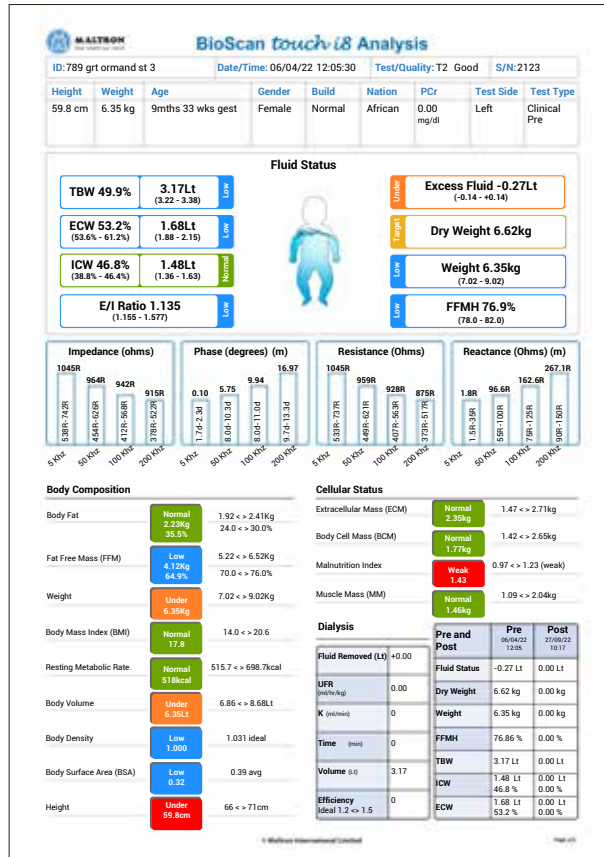
Is defined as a birth weight of less than 10th percentile for gestational age. The children born SGA have a higher risk of mortality and morbidity. This highlights the important role of assessment in the evaluation and management of FGR SGA infants

Measuring just length and weight of children does not provide accurate information in changes of Fluid Status, Fat Mass, Fat Free Mass, and Malnutrition.

Summary Pages - Health Baby



Summary Pages - Clinical Baby



Challenges Faced by Clinicians

Monitoring infants undergoing changes in Total Body Fluids, Electrolyte Balance and Body Composition is a major challenge. Current assessment protocol of measuring the height and weight of a baby does not provide vital information necessary to monitor changes of Fluid Status, Malnutrition, Fat Mass and Fat Free Mass.

Whilst some information can be gathered from invasive methods these tests are intrusive, distressing and can cause discomfort with added risk of complications for the child.

Multilevel assessments and interventions are time consuming, more expensive and complicated to implement.

Early intervention and support can lead to an improved outcome. Regular assessment with the **BioScan touch i8 - nano** allows a base line to be established to monitor the effectiveness of the treatments and changes. This is especially important when assessing malnutrition and metabolic risk in patients with chronic disease.

The BioScan *touch i8* - nano can support clinicians in the assessment of -

- Body fluid balance over and under hydration - a key concern in healthy and diseased patients
- Edema
- Sepsis or Post-surgery capillary leak, which leads to fluid accumulation
- Fluid management is often a challenge - it is not clear if the fluid is Intravascular or Extravascular
- Effectiveness of correct Nutritional support
- Understanding changes in Fat, Muscle, and Bone tissue with obesity and osteopenia that occur in later periods of growth and development
- Renal function
- Cardiovascular Disease
- Understanding the causes of Malnutrition, Kidney disease, Diabetes and much more
- Monitoring growth during infancy
- In older children it is important to understand body composition in cases of obesity and those diseases that cause malnutrition, kidney disease, diabetes and much more.
- Monitoring Infants with infectious or inflammatory diseases to predict outcome
- Dengue fever countries – monitoring infants can help guide effective treatments.



Nephrology



NICU & PICU - Surgery



Clinical Nutrition - Diabetes - Obesity



Cancer



Cardiology

Specifications

BioScan *touch i8*

Technique	Multi-frequency Bio-Electrical Impedance Analysis & FDSA+ using tetra-polar method
Display Languages	Multi-language configured
Display	10.1" Touchscreen
Frequencies	Multi-frequency 5.0 kHz, 50.0 kHz, 100 KHz, 200 KHz
Test Current	450uA RMS approx. at 5KHz – 600uA RMS approx. at 50KHz, 100KHz, 200KHz
Impedance Range	1 to 1200 ohms (full scale deflection (FSD) is 1200R)
Impedance Resolution	1 - 100R range: 0.1R, 100 - 1100R range: 1R
Impedance Accuracy	Impedance to within 1% of (FSD) +/- 5R across 100 - 1100R range and +/- 5R across 1-100R range
Phase Range	1° - 35°
Phase Resolution	0.05°
Phase Accuracy	2% of FSD +/- 0.5° (where FSD is 35°), across 1° - 30°
Resistance Range	1 - 1200R
Resistance Resolution	1 - 100R range: 0.1R, 100 - 1100R range: 1R
Reactance Range	0 - 580R
Reactance Resolution	0.1R
MT950 BioScan touch i8 Estimation of	DATA OUTPUT RESOLUTION TBW - ECW - ICW in increments of 0.1 liters FFM - FM - BCM - ECM in increments of 0.1kg
User Memory	Internal storage approx. 100,000.
Temperature Range	Storage: +5°C to +40°C - Use: +15°C to + 35°C
Relative Humidity	30% to 65% non-condensing (Environmental)
Main Power	115 to 250v AC via charger
Power	10.8VDC Li-ion battery pack (99Wh) Max.
Charger	15VDC external input power source (4 Amps max) Smart Battery Charging System built into power PCB
Weight	3.5kg approx. (with base unit)
Dimensions	Length: 350mm, Height: 325mm, Width: 155mm (with base)
Service	No serviceable parts
Guarantee	24 (twenty-four) Months parts and labour (excluding disposable items, electrodes, batteries & cables)



MALTRON
Your health our vision

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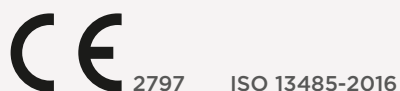
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At Maltron we don't just offer Body Composition Monitors, we offer solutions. Developed for a simple and easy integration into your current practices. We provide all aspects of comprehensive training to give your staff the skills they need.

We have over three decades of expertise fuelling our clinical innovations. Our cutting-edge Body Composition Monitor solutions are specifically designed to be an effective tool in hospital settings.

Together, we can create better healthcare.

Contact us to explore our range of Body Composition Monitors.



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