The amazing new

BioScan *touch i8*

Noninvasive Fluid Management of Decompensated and Congestive Heart Failure Patients

Comprehensive Care for Improved Quality of Life and Outcomes

MALTRON
Your health our vision

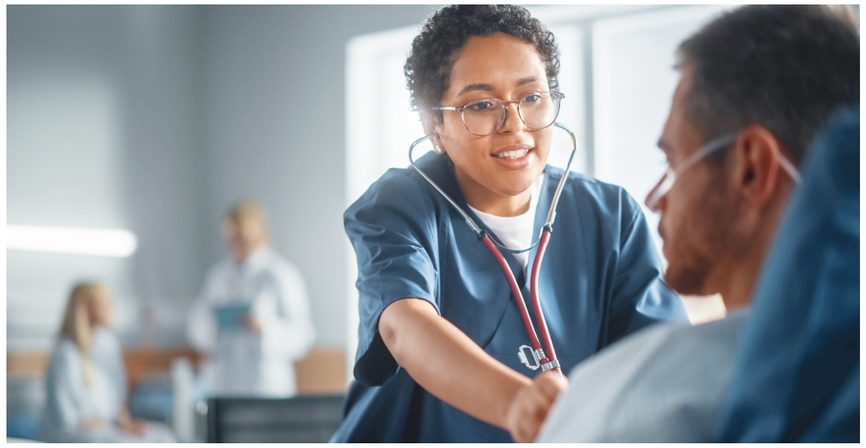
Don’t be Reactive be Proactive

EARLY ASSESSMENT OF FLUID VOLUME STATUS IS CRUCIAL IN THE MANAGEMENT OF HEART FAILURE PATIENTS

Volume overload and congestion is a serious complication leading to morbidity and mortality. Undiagnosed and untreated can lead to significant complications, including heart failure, Stroke, nephropathy, and peripheral artery disease.

Ischemic Heart Disease is the leading cause of death worldwide and also the leading cause of CHF.

CHF is a common disorder worldwide with a high morbidity and mortality rate. With an estimated prevalence of 26 million people worldwide, CHF contributes to increased healthcare costs, reduces functional capacity, and significantly affects quality of life. It is imperative to diagnose and effectively treat the disease to prevent recurrent hospitalizations, decrease morbidity and mortality, and enhance patient outcomes[1].



Enhance Patient Outcomes through effective Fluid Management

Managing both Congestive and Decompensated heart failure patients requires comprehensive treatment strategies to improve heart function, manage symptoms, and prevent progression of the disease. To improve the quality of life for patients with heart failure the importance of early diagnosis and consistent management.

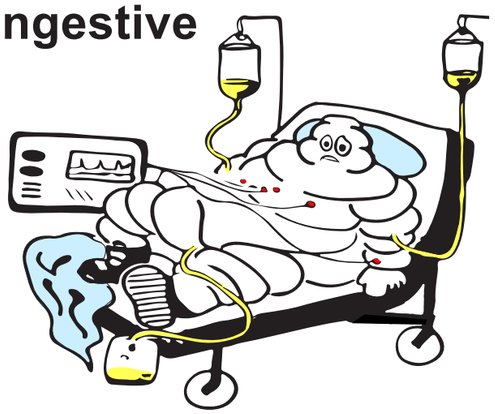
At Maltron we continue to advance our technology in order to help in the treatment of heart failure. The critical role of fluid management cannot be overstated. Effective control of fluid balance is paramount in preventing exacerbations, reducing hospitalisations, and ultimately enhancing the quality of life for your patients.

We are committed to support your healthcare team with the latest insights and tools necessary for optimal patient care.

Together, we can improve patient outcomes and provide a higher standard of care.

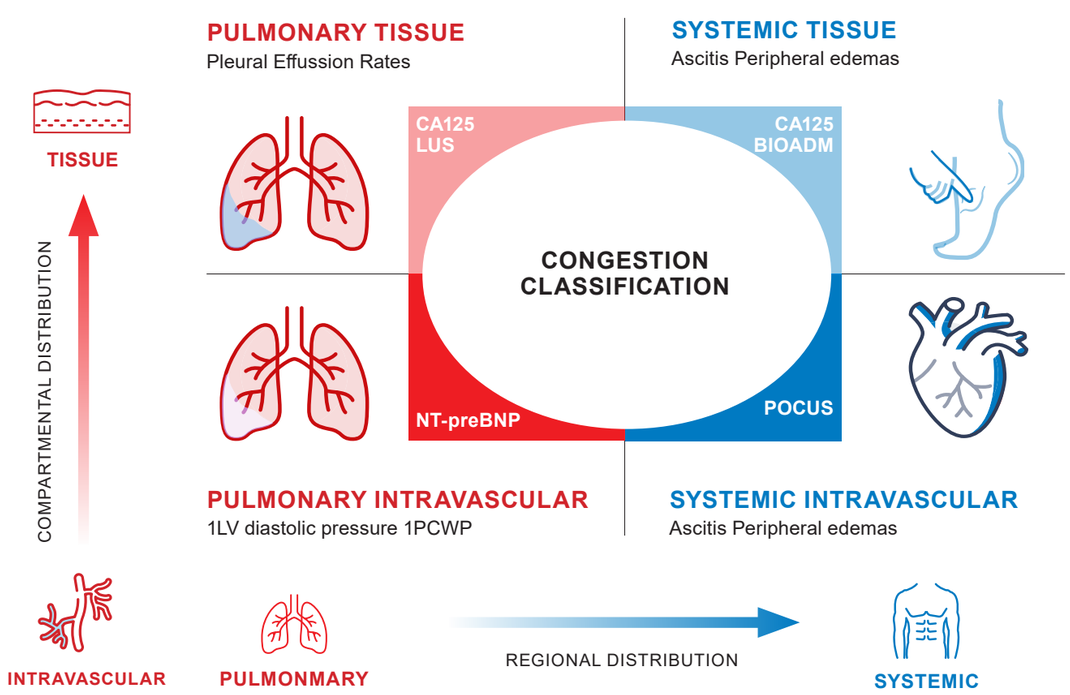
1. Congestive Heart Failure - Ahmad Malik; Daniel Brito; Sarosh Vaqar; Lovely Chhabra. Universidad Central de Venezuela, New York Medical College1.

Evaluation Of Volume Status is Crucial in the Early Management of Congestive Heart Failure Patients



Volume overload and congestion is a serious complication leading to morbidity and mortality

- Fluid overload is related to increased mortality and can lead to several complications.
- Congestive Heart Failure (CHF)
- Cardiac Arrhythmias
- Pulmonary Oedema
- Peripheral Oedema
- Hypertension
- Fluid Shifts
- Renal Dysfunction
- Compromised Tissue Perfusion
- Cerebral Complications



Congestive or Decompensated Heart Failure

Often requires immediate medical attention to prevent further complications and to stabilise the patient. It's a critical condition that can escalate quickly and needs aggressive management in a hospital setting.

Both sets of symptoms highlight the severity and impact of heart failure on the body, emphasising the need for ongoing monitoring and management to prevent progression from congestive to decompensated heart failure.

Maltron's 3 Steps to Fluid Stewardship

Don't overcomplicate - Keep it quick and simple

Step 1:
Pre Assessment

PERSONALISED

On arrival of patient before any treatment, assess Fluid Status and Dry Weight with **BioScan** *touch i8*

Step 2:
Mid Assessment

CARDIOLOGY / ICU / DIALYSIS

After every intervention monitor patients Fluid Status and Dry Weight with **BioScan** *touch i8*

Step 3:
Post Assessment

TRACK AND MONITOR THE SUCCESS OF YOUR INTERVENTION

On completion of treatment in Cardiology / Dialysis / ICU use the Maltron **BioScan** *touch i8*

=

Leads to Better Patient Outcome and reduces risk of readmission

Test can be performed in Supine and Semi recumbent patients

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.

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

Cables are attached to the electrodes and connected to the **BioScan** *touch i8*. Subject data for example Height, Weight, Age, and Ethnicity is entered into the input screen of the BioScan.

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

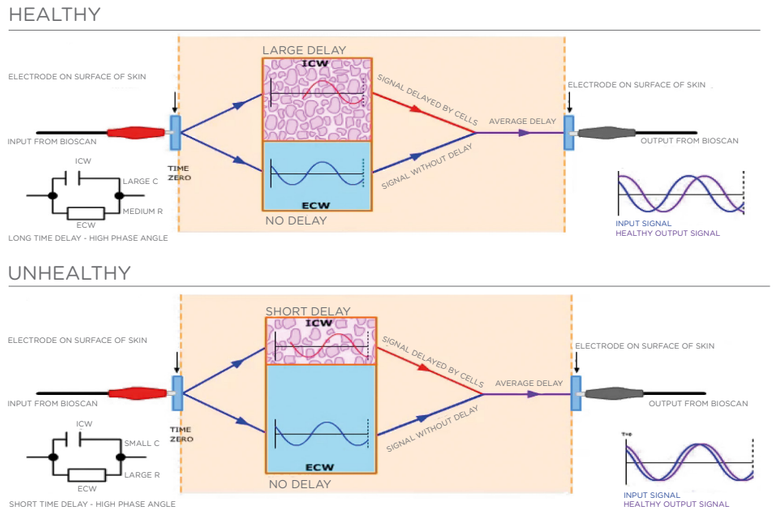
Impedance

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



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.

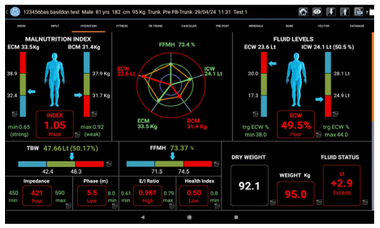
Eight Electrodes Segmental Assessments of all Limbs and Trunk

Assessment of fluid accumulation in the trunk

Fluid accumulation is one of the significant and early-stage manifestations of fatal diseases, such as Congestive Heart Failure, CKD, lung-cancer and liver-failure

Early stage assessment or monitoring of the Trunk is a key to timely medical intervention in order to help prevent complication and worsening of patients which could lead to mortality.

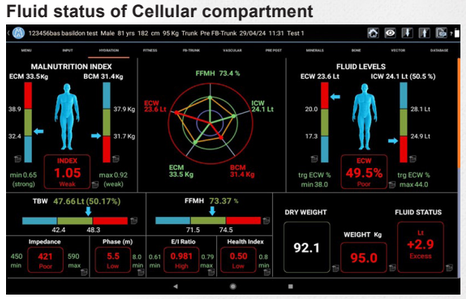
Total body water in the right and left limbs



Dynamic Trajectory Shows Changes After Every Intervention

Track Changes

Fluid status of Cellular compartment



Results show a few randomly selected screens as samples of CHR patient results

Vascular Fluid Balance Of CHF Patient

Fluid Status Of The Trunk And Balance of the Left and Right side.

Fluid Distribution & Composition Of Each Limb

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

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

BioScan is an accurate and sensitive method for screening and monitoring the effectivness of treatment in patients before its clinical manifestation

Malnutrition Index

Malnutrition is a strong predictor of mortality. It is a serious condition in adults and children commonly unrecognised and under treated.

Routine assessment should be performed in all patients 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.

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 patients to help determine recovery from malnutrition.

Total Body Water (TBW)

The assessment of total body water provides vital information which can help to the diagnosis, and management of fluid and electrolyte imbalance.

Fat Free Mass Hydration

A challenging and difficult assessment, especially when a number of comorbidity complications are present. **BioScan *touch i8*** provides a fast and accurate assessment of the FFM hydration status of a dialysis patient.

Dry Weight

Important but often difficult to establish using clinical criteria. **BioScan *touch i8*** provides fast, accurate and easy assessment. Resulting in better patient outcomes.

Fluid Status

Excess fluid is associated with an increase morbidity and mortality.

The assessment of volume status is crucial in early management of patients.

Over Hydration can lead to long-term cardiovascular (CV) complications affecting patient outcome.

Accurate, assessment of Over Hydration can be performed with the **BioScan *touch i8***.

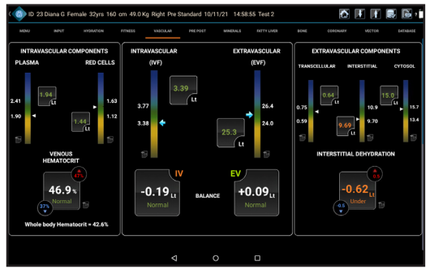
Dehydration Status - Early detection for better patient outcome with **BioScan *touch i8*** can help detect excessive fluid removal. Dehydration of the patients can be symptomatic or lead to hypovolemic shock.

The only Intravascular and Extravascular monitor in the world

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.

Is important in tracking changes, perform analysis and examine the effectiveness of interventions. **BioScan *touch i8*** results can help identify significant changes.

The BioScan *touch i8* provides full analysis of both full body and segmental assessments. More than 60 parameters with individualised min/max targets

Some key dialysis parameters

- Dry Weight
- Pre, Mid & Post assessments
- Kt/v
- Ultrafiltration Rate (UFR)
- Malnutrition Index

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

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)

Kidney Function
- Glomerular Filtration Rate (GFR)
- Creatinine Clearance

Body Composition
- Body Fat
- Muscle Mass
- Fat Free Mass
- Skeletal Muscle
- Body Cell Mass
- Cellular Biomarker (Phase Angle)
- Height
- Body Weight
- Resting Metabolic Rate
- BMI
- Bone Density
- Bone Mineral Content
- Fitness Score
- Strength Index
- Resting Metabolic Rate

Minerals and Electrolytes
- Protein
- Potassium
- Calcium
- Glycogen
- Total Body Mineral Levels

Raw Data
- Impedance
- Phase Angle
- Resistance
- Reactance
- Capacitance

Detailed Health Report of Patient Assessment

The BioScan *touch i8*, the right monitor.

How Quickly Can You Access Fluid Overload Non Invasively?

- Looking at Historical Data
- Use echocardiography
- Hemodynamic Evaluation
- Cumulative Fluid Balance
- Weight Increase
- Examine Pitting Oedema
- Observe Jugular Venous Pressure
- Jugular Venous Distension
- Consider Chest X-ray, lung exam results
- Look for ascites
- Measure BNP, NT-pro BNP levels

Make Time-Intensive, Costly Diagnostic Tests Simple and Inexpensive To Perform

Multiple Assessments

Single All in One Assessment

BioScan *touch i8* testing time 35 sec
Immediate bedside results

- ☑ Extracellular fluid
- ☑ Interstitial fluid
- ☑ Intracellular fluid
- ☑ Intravascular (IV)
- ☑ Extravascular (EV)
- ☑ Plasma
- ☑ Blood Cells
- ☑ Hematocrit
- ☑ Body Fat
- ☑ Muscle Mass
- ☑ Malnutrition
- ☑ Body Cell Mass

www.maltronint.com

Noninvasive, Accurate, Safe & Validated

Maltron BioScan *touch i8* Body Composition Monitor. Validated and evidence based technology.

ESC Heart Failure 2023

The role of bioimpedance analysis in overweight and obese patients with acute heart failure: a pilot study

Aims: Residual congestion at the time of hospital discharge is an important readmission risk factor, and its detection with physical examination and usual diagnostic techniques have strong limitations in overweight and obese patients. New tools like the **BioScan touch i8 (Maltron International Limited, Essex, UK)** bioelectrical impedance analysis (BIA) could help to determine when euvolaemia is reached. The aim of this study was to investigate the usefulness of BIA in management of heart failure (HF) in overweight and obese patients.

Methods and results: Our study is a single-centre, single-blind, randomized controlled trial that included 48 overweight and obese patients admitted for acute HF. The study population was randomized into two arms: **BioScan touch i8** BIA-guided group and standard care. Serum electrolytes, kidney function, and natriuretic peptides were followed up during their hospital stay and at 90 days after discharge. The primary endpoint was development of severe acute kidney injury (AKI) defined as an increase in serum creatinine by >0.5 mg/dL during hospitalization, and the main secondary endpoint was the reduction of N-terminal probrain natriuretic peptide (NT-proBNP) levels during hospitalization and within 90 days after discharge. The BIA-guided group showed a remarkable lower incidence of severe AKI, although no significant differences were found (41.4% vs. 16.7%; P = 0.057). The proportion of patients who achieved levels of NT-proBNP < 1000 pg/mL at 90 days was significantly higher in the BIA-guided group than in the standard group (58.8% vs. 25%; P = 0.049). No differences were observed in the incidence of adverse outcomes at 90 days.

Conclusions: Among overweight and obese patients with HF, BioScan touch i8 BIA reduces NT-proBNP levels at 90 days compared with standard care. In addition, there is a trend towards lower incidence of AKI in the BIA-guided group. Although more studies are required, BioScan touch i8 BIA could be a useful tool in decompensated HF management in overweight and obese patients.

Official Journal of the Japanese Circulation Society

Quantitative Assessment of Fluid Accumulation Using Bioelectrical Impedance Analysis in Patients with Acute Decompensated Heart Failure

Acute decompensated heart failure (ADHF) is generally considered to be a problem of fluid volume overload, therefore accurately quantifying the degree of fluid accumulation is of critical importance in assessing whether adequate decongestion has been achieved.

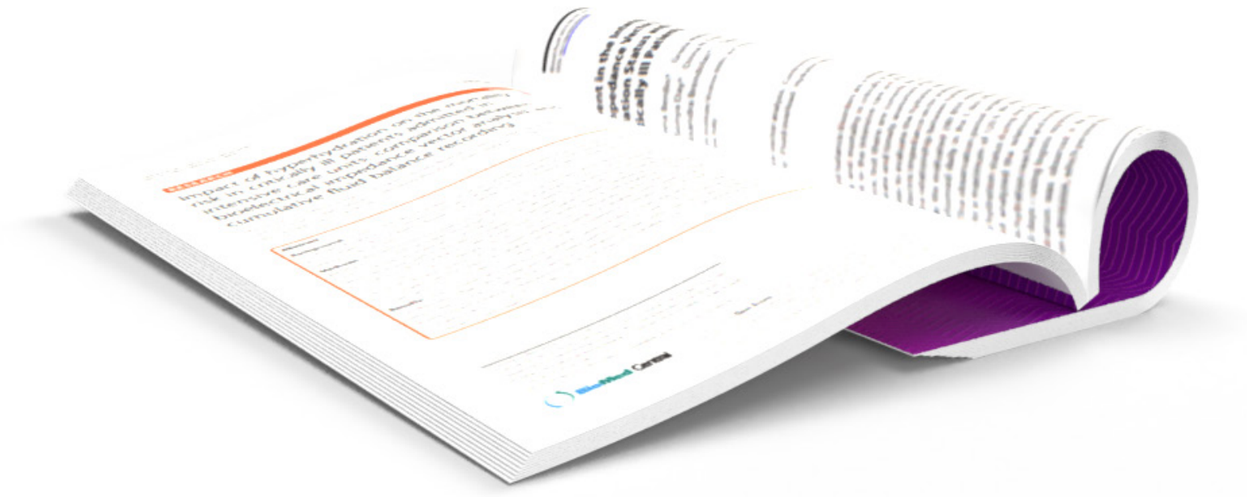
BioScan 920-II (Maltron International Limited, Rayleigh, Essex, UK) Multi-frequency BIA-measured ECW is a useful quantitative surrogate marker of fluid accumulation in patients with ADHF.

Peer-Reviewed - Cureus

Assessment of Hydration Status and Blood Pressure in a Tertiary Care Hospital at Al-Khobar

King Fahad University Hospital at Al-Khobar were collected from September 2021 to March 2022. Hydration status was measured by a bioelectrical impedance analyser **(Bioscan 920, Maltron International Ltd. Rayleigh, UK).** Hemodynamic measurements included heart rate per minute, systolic blood pressure, diastolic blood pressure, pulse pressure (the difference between systolic and diastolic blood pressure), and mean arterial pressure calculated as blood diastolic pressure plus one-third of pulse pressure. Statistical.

Our results have shown a strong association between hypertension status and hydration parameters. Hypertensive subjects tended to have lower TBW and ICW than normotensive subjects in our sample.



BioScan *touch i8* - nano

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

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

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**

Technical Specifications

Technique	Multi-frequency Bio-Electrical Impedance Analysis & FDSA+ using tetra-polar method
Display Languages	Multi-language configured
Display	10.1" Touchscreen
Frequencies	Multi-frequency 5.0kHz, 50.0kHz, 100KHz, 200KHz, 250KHz
Test Current	600uA RMS approx. at
Impedance Range	1 to 1200 ohms (full scale deflection (FSD) is 1200R)
Impedence Resolution	1 - 100R range: 0.1R 100 - 1100R range: 1R
Impedance Accuracy	Impedance to within 1% of full scale deflection (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	DATA OUTPUT RESOLUTION
Estimation of	TBW - ECW - ICW in increments of 0.1 litres FFM - FM in increments of 0.1kg BCM - 01.kg
User Memory	Internal storage approx. 100,000.
Relative Humidity	Storage: +5°C to_ 40°C Use: +15°C to+ 35°C
Atmospheric Pressure	30% to 65% non-condensing (Environmental)
Main Power	115 to 250v AC via charger
Power	10.SVDC Li-ion battery pack (99Wh)
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	12 months parts and labour (excluding disposable items, cables & electrodes)

For many years Maltron devices have been widely used for monitoring of Body Composition in diverse settings.

Maltron is the world's leading manufacturer in the field of Bioelectrical Impedance Analysis (BIA) offering a complete range of portable, bedside, diagnostic and monitoring instruments. Maltron analysers have become indispensable measuring tools in the assessment of Body Composition, hydration and for evaluating the nutritional status in both fitness and medical market sectors.

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 four decades of expertise fuelling our clinical innovations. Our cutting-edge Body Composition Monitor solutions are specifically designed to be an effective tool in hospitals, clinics, fitness and healthcare settings.

Together, we can create better healthcare.

Contact us to explore our range of Body Composition Monitors.

MALTRON
Your health our vision

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