Medical Diagnostic Device

ACCUNIQ
BC310

Body Composition Analyzer

The BC310 is a multi-frequency, whole body and segmental Body Composition Analyzer that utilizes innovative BIA technology to ensure accurate and precise results. This cutting edge technology utilizes harmless, low-level frequencies to offer quick and easy total body composition assessments through the LCD touch screen, printouts and client tracking software.

The results sheet displays an easy-to-read graphical analysis to help maintain healthy body composition and whole body health trending.

THESS GROUP

ACCUNIQ

+
ACCUNIQ
Medical Devices to Help Promote Health & Longevity

ACCUNIQ medical devices are manufactured by SELVAS Healthcare, a global company that incorporates the most advanced technology available to provide accurate and reliable results. We are committed to partner with our customers to provide high quality products to help their patients and clients monitor and improve their health.

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Crazy Fit, Incredible Life
Our one and only desire - a perfect body!

History

2016 Corporate name changed to SELVAS Healthcare, Inc., and listed in KOSDAQ

2015 World's first dual-type sphygmomanometer system approved by the US FDA

2014 Grand Prize, 1st People's Happiness Premium IT-incorporated
      Korean Medical Device Awards

      Popularity Award, Analysis and Diagnosis System Segment 2014 Selected
      by "Health & Beauty," a German fitness magazine

2010 Advanced Venture Company Award

2006 Director's Award by the Korea Food and Drug Administration (KFDA)

2005 Bronze Prize, 13th Republic of Korea Technical Awards

      Silver Prize, Venture Design Awards

      Bronze Medal of Industrial Effort, 35th Precision Technology Promotion Contest

2004 Body Fat Analyzer Selected as a World-Class Product (Ministry of
      Commerce Industry and Energy)

2003 Director's Award by the Korea Food and Drug Administration (KFDA)

2001 Prime Minister's Award, Trade Day

      KGMP(Korea Good Manufacturing Practice)-Certified

2000 Top Prize, Leaders' Venture Awards

      President Kim, Dae-Jung and First Lady visited our company

1999 Presidential Award in National Venture Awards

      Selected as a World Top-class Company

Certifications and Awards

GMF Certified

CE Certified
0197

GoodDesign Award

Presidential Award in National Venture Award

Bronze Medal of Industrial Effort in Precision Technology Promotion Contest

ACCUNIQ medical devices have been used globally to measure and analyze overall health results with our healthcare and fitness professionals in mind where accuracy is of the utmost importance. They are currently used globally in **hospitals, medical facilities, doctor's offices, weight loss centers, Fitness Centers, nursing homes, public health facilities,** and **retail locations.**

- Monographic LCD

- 3 Available Frequencies: 5,50,250 KHz

- Built in Thermal Printer

- User Configurable Modes-Adult, Athlete, Wrestler and Goal Setter

- Client Tracking Software Provided (ACCUNIQ MANAGER)

- USB and RS232 ports for computer or printer interface

Multi-Use B.C.A. BC310
Desk Type / Wall Type / Stand Type
for Versatile Arrangement
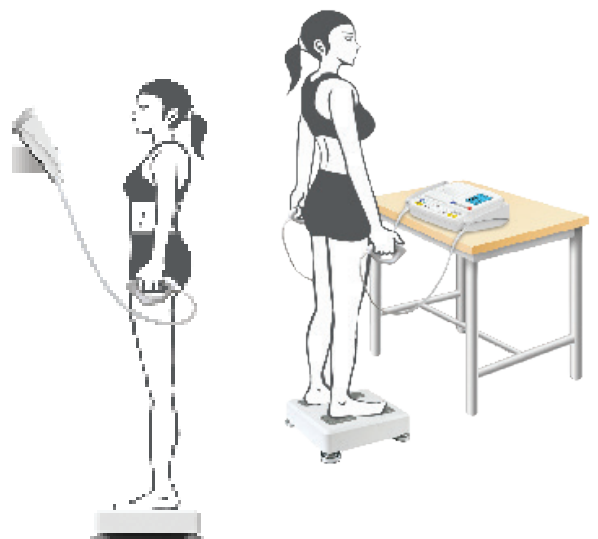
Adjust the brightness of
Mono Graphic LCD, Keypad

Whole Body
Measurement

Upper
part of the body

Lower
part of the body

+
Diverse Range of Options

ACCUNIQ body composition analyzers offer multiple options to meet multiple end-user requirements.

Fully Automatic Sphygmomanometer

Connect our fully automatic sphygmomanometer for hospitals to control your blood pressure in connection with your body fat, which can help you manage your body weight more efficiently.

A4 Result Sheet

The output results are displayed systematically and clearly.

Thermal Printer

Use the thermal printer to quickly and easily print the analysis.

Column (Support)

Various Results and Descriptions
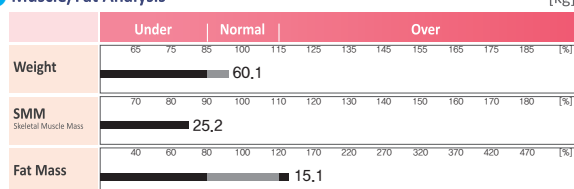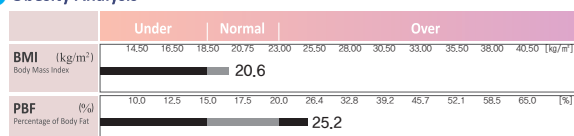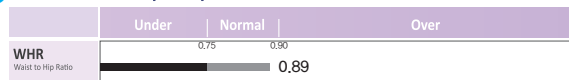
ACCUNIQ

BC310

ID / NAME : SELVAS HEALTHCARE123 / Michael

Height : 170.6   Age : 35   years   Gender : Male   Test Date/Time : 21 − 09 − 2016   09:34

selvas Healthcare

❶ Body Composition Analysis

	values	Body Water	Soft Lean Mass	Fat-Free Mass	Weight
Body Water	32.8 (37.4 ~ 39.7)	32.8			
Proteins	9.1 (10.2 ~ 11.5)		41.9 (44.1 ~ 53.9)		
Minerals	3.1 (3.7 ~ 3.8)			45.0 (51.2 ~ 54.4)	
Body Fat	15.1 (9.0 ~ 13.4)				60.1 (54.4 ~ 73.6)

❷ Muscle/Fat Analysis   [kg]

	Under	Normal	Over
Weight		60.1	
SMM Skeletal Muscle Mass		25.2	
Fat Mass		15.1	

Weight scale: 65 75 85 100 115 125 135 145 155 165 175 185 [%]
SMM scale: 70 80 90 100 110 120 130 140 150 160 170 180 [%]
Fat Mass scale: 40 60 80 100 120 170 220 270 320 370 420 470 [%]

❸ Obesity Analysis

	Under	Normal	Over
BMI (kg/m²) Body Mass Index		20.6	
PBF (%) Percentage of Body Fat		25.2	

BMI scale: 14.50 16.50 18.50 20.75 23.00 25.50 28.00 30.50 33.00 35.50 38.00 40.50 [kg/m²]
PBF scale: 10.0 12.5 15.0 17.5 20.0 26.4 32.8 39.2 45.7 52.1 58.5 65.0 [%]

❹ Abdominal Obesity Analysis

	Under	Normal	Over
WHR Waist to Hip Ratio		0.89	

WHR scale: 0.75 0.90

❺ Comprehensive Evaluation

Body Type	over fat class 2	
Biological Age	38	years
Basal Metabolic Rate(BMR)	1340	kcal
Total Daily Energy Expenditure	2063	kcal
Body Cell Mass	30.7	

❻ Control Guide

Target Weight	63.2	kg
Weight Control	+3.1	kg
Muscle Control	+7.1	kg
Fat Control	−3.9	kg

❼ Goal Setter

Target PBF	20	%
Predicted Weight	56.3	kg
Predicted Fat Mass	11.3	kg
Control	−3.8	kg

❽ Obesity Assessment

BMI	☐ underweight	☑ normal	☐ overweight	☐ obese
PBF	☐ low-fat	☐ normal	☐ over-fat	☑ obese

Obesity Degree   −6.1 (−10.0~+10.0)   %

Abdominal Circumference   82.0 (Less than 90cm)   cm

❾ Segmental Lean Mass

Lt.   Rt.

Under 2.95kg	Well 2.79kg
Over 21.70kg	
Optional 7.13kg	Well 7.03kg
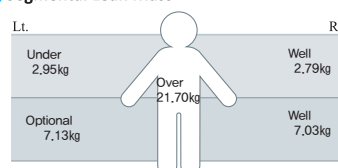
❿ Impedance (584)

Freq	5K	50K	250K
RA.Imp.	336	333	308
LA.Imp.	335	321	293
Trunk	30	24	24
RL.Imp.	292	246	215
LL.Imp.	278	220	189

[MEMO]

JUNE 30, 2016 Rev A.0

❶ Body Composition Analysis
This is a measurement of analysis results of body components(e.g., body water, proteins, minerals and body fat) relative to normal ranges.

❷ Muscle/Fat Analysis
This graph of the Skeletal Muscle Mass(SMM) and fat mass illustrates the proportion of skeletal muscle and body fat that comprise the total body weight.

❸ Obesity Analysis
This graph of percentage of body fat(PBF) and body mass index (BMI), of which the latter is critical in assessing the prevalence of obesity, illustrates clinical data needed for obesity analysis.

❹ Abdominal Obesity Analysis
Fat in the body is divided into subcutaneous fat and visceral fat. Visceral fat is closely connected with adult diseases, and measured based on several factors.

❺ Comprehensive Evaluation
This item shows your body type, biological age, basal metabolic rate(BMR), total daily energy expenditure (TEE), and body cell mass.

❻ Control Guide
This item presents your recommended target weight, weight, and muscle and fat mass control.

❼ Goal Setter
It indicates how much fat, weight and Lean Body Mass needs to be controlled. By comparing the current status to the standard weight, the target is to reach the minimum or maximum value of optimal range.

❽ Obesity Assessment
This item assesses your BMI, PBF and indicates your obesity degree and abdominal circumference.
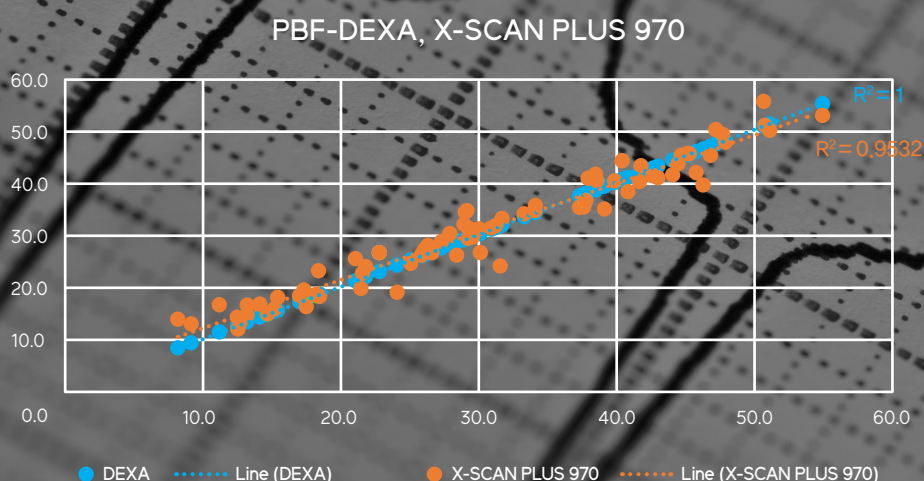
❾ Segmental Lean Mass
This item assesses the lean mass of 5 body parts (left arm, right arm, left leg, right leg, and trunk) in graphs.

❿ Impedance
Impedance using frequency applied to a body part. Impedance is a resistance value when electric current is passed through the body. Each subject has a unique impedance.

+ High Consistency with DEXA

The methods of analyzing your body composition include computed tomography(CT), magnetic resonance imaging(MRI), and underwater weighing. Dual-energy X-ray absorptiometry(DEXA) is currently considered the gold standard since it accurately analyzes your fat, muscles, and bones and does not involve any radiation exposure. ACCUNIQ conducted clinical tests with IHT, a professional clinical organization based in Texas, USA, to verify our product's precision with DEXA. The result shows that our analysis is more accurate than our competitors.

PBF-DEXA, X-SCAN PLUS 970

Chart showing $R^2 = 1$ and $R^2 = 0.9632$

Legend: ● DEXA ⋯⋯ Line (DEXA) ● X-SCAN PLUS 970 ⋯⋯ Line (X-SCAN PLUS 970)

※ Determination of coefficient(R^2) of DEXA is 1, and the accuracy of ACCUNIQ is higher if R^2 value is close to 1.

※ The accuracy of X-SCAN PLUS 970 is proved through clinical study with DEXA at IHT center in USA, and the accuracy of other ACCUNIQ brands are guaranteed by high correlation each other.

	Paired T-test Analysis of Body Composition								
DEXA-ACCUNIQ	Percent Body Fat(%)			Body Fat Mass(kg)			Lean Body Mass(kg)		
	Mean±SD	p-value	p-value explanation	Mean±SD	p-value	p-value explanation	Mean±SD	p-value	p-value explanation
	-0.4±0.7	0.17	DEXA PBF = ACCUNIQ PBF	-0.4±0.2	0.06	DEXA PBF = ACCUNIQ PBF	0±0.3	0.99	DEXA PBF = ACCUNIQ PBF

Coefficient of Determination between Our Products (X-SCAN PLUS 970 and ACCUNIQ BCA)	LBM R^2		
	BC720	BC510	BC360
	0.9967	0.9949	0.9962

Multi-Frequency Analysis

ACCUNIQ uses 6 frequencies between 1 kHz and 1000kHz to analyze your intracellular water, extracellular water, and total body water accurately. A frequency lower than 100kHz is used to analyze extracellular water since it flows along the cell membrane, whereas a frequency above 100kHz is used to analyze total body water as it flows through the cell membrane.

Low
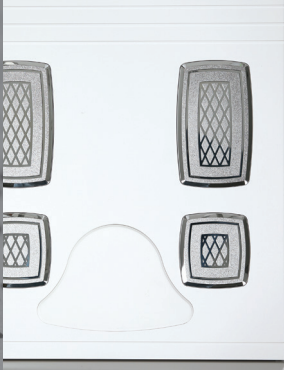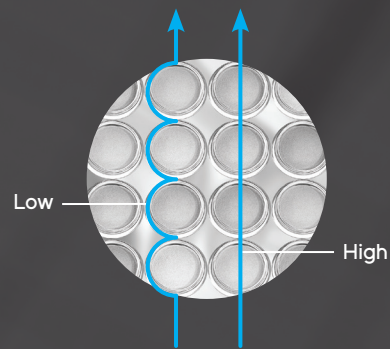
High

Eight-Point Touch Electrodes

ACCUNIQ uses the 8-point touch electrodes method, which is highly accurate despite its complexity. Eight electrodes may be placed on the hands and feet or wrists and ankles to analyze body composition stably.

ACCUNIQ BC310 Specifications

Model	ACCUNIQ BC310
Measuring Method	Tetra-polar electrode method using 8 touch electrodes
Frequency Range	5, 50, 250kHz
Measuring Site	Whole body, Upper part of the body, Lower part of the body (Selective)
Results Sheet Data	Weight, Standard Weight, Lean Body Mass, Total Body Water, Intra Cellular Water, Extra Cellular Water, B.M.I. (Body Mass Index), Mass of Body Fat, Percent of Body Fat, W.H.R. (Waist to Hip Ratio), Basal Metabolic Rate, Ratio of E.C.W./T.B.W., Segmental Lean Body Mass, Impedance, Body Type, Target to Control, Goal Setter
Power Consumption	60VA
Measuring Current	Approx. within 180μA
Power Consumption	Input (AC 100~240V, 50~60Hz), Output (DC 12V, 5A adapter)
Display	Mono Graphic LCD
Input Device	Key pad, Remote entry to PC
Transmission Device	USB Terminal, RS-232C Port
Printing Device	Thermal Printer with auto-cut and high-speed printing
Dimension	Whole body - Head part 350×216.5×123mm (W×D×H±10mm) Upper part of the body - Head part 350×216.5×123mm (W×D×H±10mm) Lower part of the body - Head part 267×216.5×90mm (W×D×H±10mm), Plate 371×355×106mm (W×D×H±10mm)
Weight	Whole body Approx. 13.5kg (Including the column) Upper part of the body Approx. 11kg, Lower part of the body Approx. 10kg
Measuring Range	100~950Ω
Measuring Time	Approx. 1 minute
Applicable Height	50~220cm
Measuring Weight	10~200kg
Applicable Age	1~99 years old
Operation Ambient	Ambient temperature range +5 to +40℃, Relative humidity range 15 to 93% (non condensing)
Storage Ambient	Ambient temperature range -25 to +70℃, Relative humidity range lower than 93% (non condensing)

Optional Equipment	Fully Automatic Sphygmomanometer, A4 Result Sheet, Thermal Printer, Column (Support)
Printing Logo	Printing logo or the name of hospital, address, contact information on the pre-printed result sheet.
Scale Offset	Compensating measured value of weight scale
Compensating the Clothes weight	Compensating the weight of clothes which the user wears during the measurement.
Date · Time	Setting current date and time
Brightness	Adjust the brightness of Mono Graphic LCD
Thermal Printer	High speed thermal printer with auto cutting function

※ For purpose of improvement, specifications and design are subject to change without notice.
This is a medical device. Read precaution and operation method before use.

THESS GROUP

SELVAS Healthcare is Jawon Medical's new company name.

866mm

371mm   605mm