Central Blood Pressure Meter
Model cBP301

Operating Manual

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Contents

Introduction

Thank you for choosing the Central Blood Pressure Meter from Centron Diagnostics. Please take a moment to familiarise yourself with instructions for use detailed in this manual and for further information please refer to our website: www.centrondiagnostics.com .

Central systolic blood pressure is the peak of the pressure pulse at the aortic root during a cardiac cycle.

As the pulse travels through smaller arteries its shape changes so that when systolic pressure is measured conventionally, in the brachial artery of the upper arm, the systolic pressure is significantly increased. The amount of increase depends upon the stiffness of the arteries and the shape of the pressure waveform.

Recent studies have shown that different classes of antihypertensive drugs have different effects upon brachial and central blood pressure and that the reduction in central blood pressure could be over or under estimated by the use of brachial blood pressure alone[1].

It has also been shown that central systolic blood pressure is a better predictor of cardiovascular disease than brachial blood pressure[2].

The cBP301 is a compact, self contained device designed to measure both brachial blood pressure and central systolic blood pressure. Its operation requires no special training and the procedure is identical to routine oscillometric measurement. The cBP301 is portable and can be powered from mains supply or battery.

The cBP301 measures brachial blood pressure using SunTech Medical® validated oscillometric technology.

The central systolic blood pressure is derived using waveform analysis developed by King's College London and is displayed together with the ratio of the brachial pulse height to the central pulse height.

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1. Morgan T, Lauri J, Bertram D, Anderson A
Effect of different antihypertensive drug classes on central aortic pressure.
Am J Hypertens 2004 Feb; 17(2): 118-23

2. Williams B, O'Rourke M
Anglo-Scandinavian Cardiac Outcomes Trial. The Conduit Artery Functional Endpoint (CAFE) study in ASCOT.
J Hum Hypertens. 2001 Aug;15 Suppl 1:S69-73

Package Contents

1 cBP301 Central Systolic Blood Pressure Meter
2 Mains supply adapter
3 Hose
4 Adult and large adult cuffs
5 Alkaline AA cells

Contraindications

Blood pressure measurement at the brachial artery is a relatively benign process and no absolute contraindications exist. However, the measurement should be avoided in the following cases:
Presence of an arterial-venous shunt
Lymphatic obstruction in the arm
Deformity or surgical history that interferes with proper access to the upper arm.

Warnings and Cautions

Caution: Possibility of injury or serious damage
Warning: conditions or practices that could result in personal injury.
Please Note: Important information for avoiding damage to the instrument or facilitating operation of the instrument.

 **CAUTION:** Read the manual before use
WARNING: The instrument is not suitable for use in the presence of explosive or flammable gases, flammable anaesthetic mixtures or in oxygen rich environments.
WARNING: The use of portable phones or other radio frequency (RF) emitting equipment near the system may cause unexpected or adverse operation
 **PLEASE NOTE:** The product you have purchased should not be disposed of as unsorted waste. Please utilise your local WEEE collection facilities for the disposal of this product.

Intended Use

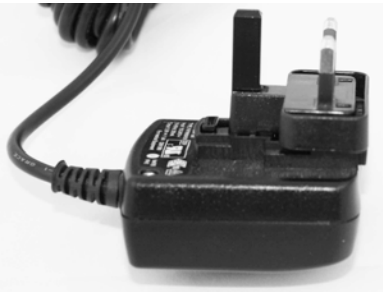
The intended use of the product is to provide the additional measurement of central blood pressure to the routine measurement of brachial blood pressure in the upper arm in adults. The additional measurement of central blood pressure is considered to be of greater clinical significance than the peripheral measurement alone.

Environment

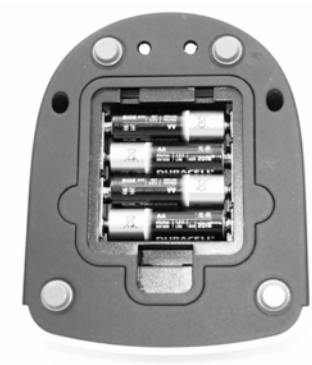
The cBP301 is designed for routine clinical use in an office environment. Use in temperatures outside the range 0 to 50 ^{O}C should be avoided.
The environment should be free of excessive vibrations, electrical noise etc.
Keep mobile phones 5 meters away during measurement.

Getting Started

Remove the protective plastic film from the screen.
The cBP301 may be powered by mains or battery.
Remove the power supply from its cardboard box and connect the required national plug top as shown below and slide towards cable until it clicks into place:



If required, insert four AA size alkaline batteries as shown below taking care to observe the correct polarity:



Connect the required cuff to the unit using the hose as shown below:

Operation

Wrap the cuff around the subjects upper arm midway between the elbow and the shoulder.
Ensure that the **ARTERY** arrow is over the brachial artery, between the biceps and triceps on the inside of the arm.
Use the **RANGE** indicator with the **INDEX** line to check that the arms falls within the specified range for that cuff.
Use appropriate larger or smaller cuff if necessary.
The subject should be seated comfortably with their arm resting upon a table.

Turn the unit on by pressing the **on/off** button on the front panel. A start up screen will be displayed showing the software version.
Press **START** to begin the test.

The cuff will inflate and the brachial blood pressure measurements systolic (**SYS**) diastolic (**DIA**) and mean arterial pressure (**MAP**) will be taken and displayed.
This will be followed automatically by a re-inflation to obtain the brachial artery pressure waveform. The central systolic blood pressure (**cSYS**) together with the heart rate (**HR**) and pulse amplification (**AMP**) are then displayed. The pulse amplification is given by the formula:

$$100*(SYS- DIA)/(cSYS – DIA)\%$$

When the measurement is complete turn the unit off by pressing the **on/off** button

Battery Management

The batteries are sufficient to provide power for 50 tests. To ensure maximum lifetime of the batteries turn the unit off when not in use.
Remove the batteries if you do not intend to use the device for more than 3 months or if used solely with the mains adapter.

Cleaning

The casing of the unit may be cleaned using a damp cloth with the mains adapter disconnected. Take care that no water is allowed to enter the unit.
The display may be wiped gently with a dry cloth only.
The cuff can be cleaned by spraying with a mild disinfectant solution (e.g. ENZOL or a 10% bleach solution).

Servicing

If your unit requires servicing or repair please contact Product Support at Centron Diagnostics (service@centrondiagnostics.com) to obtain a Returned Goods Authorisation (RGA) number. No product should be returned to Centron except in accordance with the Centron Warranty and Return Goods Policy (for full details please visit www.centrondiagnostics.com)

There are no user serviceable parts in the cBP301

Trouble Shooting Information

Should you encounter problems operating the cBP301 consult the table below:

Problem	Possible cause	Solution
Unit does not turn on when powered by batteries	Batteries flat	Replace batteries
Unit does not turn on when powered by mains adapter	Mains outlet switched off	Turn on mains outlet
Error message displayed during measurement	Movement artefact detected	Ensure subject is relaxed and still and repeat test

Electromagnetic Compatibility (EMC)

Changes or modifications to the cBP301 that are not expressly approved by Centron Diagnostics can cause EMC issues with this or other equipment.

This instrument complies with directive EN60601-1-2 electromagnetic compatibility but can be affected by cellular phones and by electromagnetic interference exceeding levels specified in EN 50082-1:1992

Symbols

	Type B device
CE 0086	In accordance with Directive 93/42/EEC
	Disposal in compliance with WEEE
	Consult the instructions for use
	Caution: consult the accompanying documents
	Date of manufacture
	Manufacturer
SN	Serial number

Specifications

Range:
Systolic 40 – 260mmHg
Central Systolic 40 – 250mmHg
Diastolic 20 – 200mmHg
Mean Arterial Pressure 25 – 220mmHg
Heart Rate 30 – 220 bpm

Accuracy:
Meets ANSI/AAMI SP10-2002, EN 1060-4
Heart Rate +/- 2% or +/- 3bpm (whichever is the greater)

Power Supply:
4 x AA size Alkaline primary cells or universal mains
adapter 100V to 240V, 250mA, 50/60Hz input, 1.4 Amp 6 Volt DC output

Operating current:

Battery life:

Dimensions:

Weight:

Operating Conditions:
0^{O}C to 50^{O}C, 15% to 95% RH, non condensing

Storage Conditions:
-20^{O}C to 65^{O}C, 15% to 95% RH, non condensing

Lifetime:
5 years

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