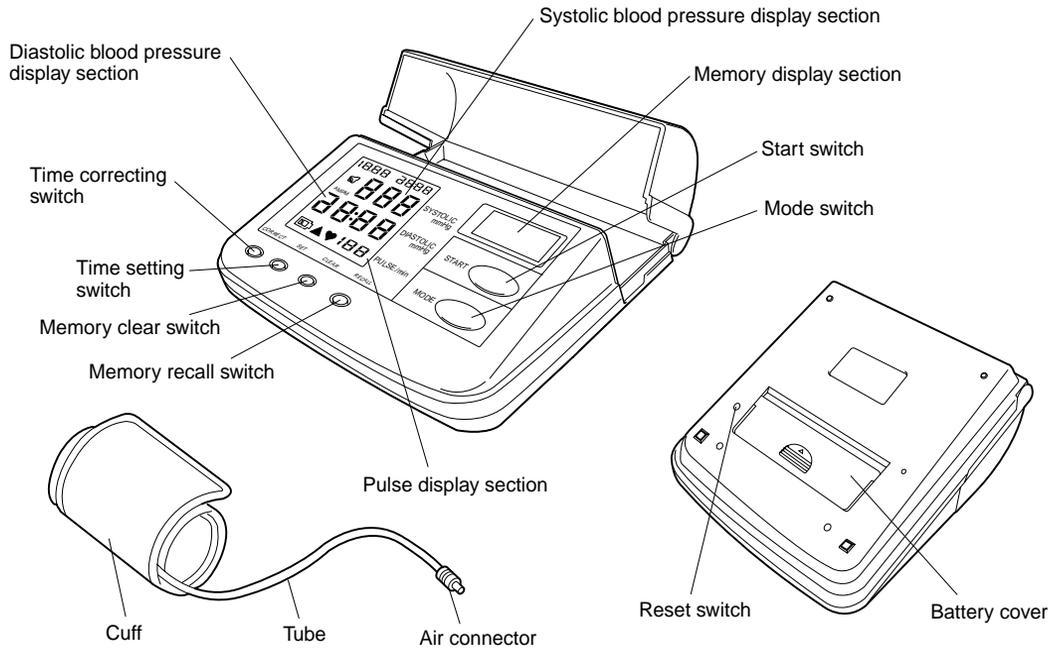


# CITIZEN™

## INSTRUCTION MANUAL FOR DIGITAL BLOOD PRESSURE MONITOR

### REF CH-491E

#### IDENTIFICATION OF PARTS



## SPECIFICATIONS

<b>Measuring method:</b>	Oscillometric system
<b>Indication:</b>	Digital display, Height: 16mm Digital Graphic memory display
<b>Measuring range:</b>	Pressure; 0 ~ 280mmHg, Pulse; 40 ~ 180 beat/min.
<b>Accuracy:</b>	Pressure; $\pm 3$ mmHg, Pulse; $\pm 5\%$
<b>Inflation:</b>	Automatic inflation at suitable level by internal pump
<b>Deflation:</b>	Electromagnetic valve
<b>Memory function:</b>	30 data (data, time, blood pressure values, pulse)
<b>Clock:</b>	$\pm 20$ seconds a month, Full Auto-calendar, Alarm
<b>Power source:</b>	4 "AA" (LR6) Alkaline batteries
<b>Battery life:</b>	Approx. 500 times/LR6 (once a day, 170mmHg, room temp. 22°C)
<b>Rated voltage:</b>	6V DC
<b>Working temp. &amp; humidity:</b>	+10°C ~ +40°C, 30 to 85%RH
<b>Storage temp. &amp; humidity:</b>	-20°C ~ +60°C, 10 to 95%RH
<b>Outside dimensions:</b>	183mm(W) $\times$ 199mm(D) $\times$ 80mm(H)
<b>Weight:</b>	740g (Apparatus, cuff and batteries)
<b>Electric shock protection:</b>	Type B equipment
<b>Accessories:</b>	Preformed Cuff, 4 "AA" (LR6) batteries, Instruction manual

\*Specifications and designs may be changed without notice in the event of improvements being made.

## CLEANING METHOD OF CUFF

After cleaning the cuff with a neutral detergent, lightly rinse it with water and let it dry in the air. Hard rubbing or washing in a

washing machine will cause air leakage. Also, be careful not to get water into the air hose.

## GENERAL REMARKS

### General Remarks on blood pressure measurement

- If the cuff is to be deflated quickly, depress "POWER" switch.
- The attached cuff is suited for an arm circumference of 22cm to 32cm.
- When attaching the cuff, rubber cuff hose should be placed on the inside of your arm on top of the arterial.
- Self measurement is no therapy! In no case may you change the dosage of medication prescribed by your physician.
- In operation for blood pressure measurement, you should urinate and should remain relatively still for 10 to 15 minutes prior to measurement.
- Exercise, eating and drinking, smoking, etc., prior to measurement may affect the results.
- The blood pressure varies constantly throughout the day. Measurement should be made regularly at the same time each day.
- Do NOT be impressed by the results of one measurement. Keep a record of blood pressure variations. Many readings tell a story.
- Emotional stress may tend to cause pressure to rise.

### For proper measurement of blood pressure

- Take a deep breath five or six times and then relax before measuring blood pressure. If you are tense when taking the measurement, you will not get a valid reading.
- Blood pressure will be elevated when you are in a worrisome or irritated state, suffering from lack of sleep or constipation, or after exercise or a meal.
- Putting on the cuff is one of the most important tasks for ensuring proper measurement of blood pressure. Wind the cuff around the arm and tighten it so that one finger may be inserted between the cuff and arm.
- Do NOT measure blood pressure after bathing or drinking.
- When you feel like relieving yourself, you should do so before measuring blood pressure.

- Measure blood pressure where the room temperature is about 20°C. Do NOT measure blood pressure when it is too cold (below 10°C) or too hot (above 40°C) in the room.
- Do NOT measure blood pressure immediately after drinking coffee or tea or smoking.
- Measure blood pressure with a relaxed and quiet posture. Keep the center of the cuff at the level of your heart, and do NOT move your arm or talk during measurement.
- Do NOT keep on measuring so many times, as your arm will have built up congestion of blood, and you will not get a valid reading.

## PRECAUTION FOR USE AND MAINTENANCE

### Precautions for use

- If you suffer from heart disease, high blood pressure or other circulatory disease, please consult your doctor first.
- If you feel abnormal pressure of the cuff during use or any other irregularity, reduce the pressure by immediately switching off the power or removing the batteries and consult the sales outlet where purchased.
- If you think the measured value is abnormal or if measuring makes you feel unwell, discontinue use and consult your doctor.
- Measurement of blood pressure may not be possible for someone with a weak pulse or arrhythmia.
- Congestion, swelling, etc. may occur in some people.
- If blood pressure is measured repeatedly, an accurate result will not be achieved. An interval of about 10 minutes should be allowed.
- The memory is erased if the batteries are removed for replacement, etc. and a record should be kept of any necessary data.

### Precautions for maintenance

- Do NOT store the blood pressure monitor where it will be exposed to direct sunlight, high temperature (over 60°C), low temperature (below -20°C), high relative humidity (over 95%) or in a dusty place.
- Do NOT expose the blood pressure monitor to under force or vibration, or drop it.
- Remove the battery/batteries when not in use for a long period.
- Do NOT disassemble the apparatus.

- Do NOT bend the cuff or air hose unnecessarily.
- NEVER wipe the blood pressure monitor with thinner or benzene, as they may damage it.
- When the monitor is very dirty, wipe it clean with a cloth moistened with Sterilizing alcohol or a neutral detergent, and then wipe it with a dry cloth. Do NOT use thinner or benzene.

### Nature and frequency of maintenance:

This product is designed for use over an extended period of time; however, it is generally recommended that it be inspected every two years to ensure proper function and performance.

### Protect the nature environment:

Please help protect natural environment by respecting national and/or local recycling regulations when disposing of the batteries and the products at the end of their useful lives.

### Reference European standard:

This product complies with EC instructions 93/42/EEC (Medical Device Directive) and with the following standards: EN 1060-1: 1995 "Noninvasive Sphygmomanometers, Part 1 General Requirements" and EN 1060-3: 1997 "Noninvasive Sphygmomanometers, Part 3 Supplementary Requirements for Electro-mechanical Blood-Pressure Measuring Systems.

**Manufacturer:**

Name: Premier Precision Ltd.  
 Address: Block E, G-H, 6<sup>th</sup> floor, Phase 2, Yip Fat  
 Factory Building,  
 73-75 Hoi Yuen Road, Kwun Tong, Kowloon,  
 Hong Kong

**European Representative:**

Name: WvW elektronische Geräte Vertrieb GmbH.  
 Address: Robert-Koch-Straße 20, D-80538 München,  
 GERMANY



## CLOCK MODE

### 1. Default Time Indicating State and Selection of Each Mode



- When the battery is installed, the time, date and alarm are set as follows.  
 Date and time : January 1 1998,  
 12:00:00 AM  
 (12-hour system is selected)  
 Alarm : 12:00 AM (Turned off)
- Each time the time setting switch is pressed, the alarm is turn ON or OFF (See 11).

- If the mode switch is pressed, the meter is set to the 0 take-in state in the blood pressure meter mode.
- The alarm works only in the time indicating state.
- If the time correcting switch is pressed for approx. one second, the meter is set to the alarm minute correcting state.

### 2. Alarm Minute Correcting State



- ① Press the time setting switch until the correct value of the minute is indicated.  
 (Each time the time setting switch is pressed, the value of the minute is increased by one. The value of the minute can be corrected in only the forward direction. It can be corrected quickly by keeping the time setting switch pressed.)

- ② To correct the alarm hour, press the time correcting switch, and the meter is set to the alarm hour correcting state.
- ③ Press the mode switch to finish correction.

### 3. Alarm Hour Correcting State



- ① Press the time setting switch until the correct value of the hour is indicated. (Each time the time setting switch is pressed, the value of the hour is increased by one. The value of the hour can be corrected in only the forward direction. It can be corrected quickly by keeping the time setting switch pressed.)

- ② To correct the clock second, press the time correcting switch, and the meter is set to the clock second correcting state.
- ③ Press the mode switch to finish correction.

### 4. Clock Second Correcting State



- ① When the time signal of 00 second sounds, press the time setting switch to set the second to 00.  
 (If a value between 30 seconds and 59 seconds is corrected, the value of the minute is increased by one. If a value between 0 second and 29 seconds is corrected, the value of the minute is not changed.)

- ② To correct the clock minute, press the time correcting switch, and the meter is set to the clock minute correcting state.
- ③ Press the mode switch to finish correction.

## 5. Clock Minute Correcting State



- ① Press the time setting switch until the correct value of the minute is indicated.

(Each time the time setting switch is pressed, the value of the minute is increased by one. The value of the minute can be corrected in only the forward direction. It can be corrected quickly by keeping the time setting switch pressed.)

- ② To correct the clock hour, press the time correcting switch, and the meter is set to the clock hour correcting state.  
③ Press the mode switch to finish correction.

## 6. Clock Hour Correcting State



- ① Press the time setting switch until the correct value of the hour is indicated. (Each time the time setting switch is pressed, the value of the hour is increased by one. The value of the hour can be corrected in only the forward direction. It can be corrected quickly by keeping the time setting switch pressed.)

- ② To correct the year, press the time correcting switch, and the meter is set to the year correcting state.  
③ Press the mode switch to finish correction.

## 7. Year Correcting State



- ① Press the time setting switch until the correct value of the year is indicated. (Each time the time setting switch is pressed, the value of the year is increased by one. The value of the year can be corrected in only the forward direction. It is increased from 1998 to 2097, then set to 1998 again. It can be corrected quickly by keeping the time setting switch pressed.)

- ② To correct the month, press the time correcting switch, and the meter is set to the month correcting state.  
③ Press the mode switch to finish correction.

## 8. Month Correcting State

- ① Press the time setting switch until the correct value of the month is indicated. (Each time the time setting switch is pressed, the value of the month is increased by one. The value of the month



can be corrected in only the forward direction. It can be corrected quickly by keeping the time setting switch pressed.)

- ② To correct the day, press the time correcting switch, and the meter is set to the day correcting state.  
③ Press the mode switch to finish correction.

## 9. Day Correcting State



- ① Press the time setting switch until the correct value of the day is indicated. (Each time the time setting switch is pressed, the value of the day is increased by one. The value of the day can be corrected in only the forward direction. It can be corrected quickly by keeping the time setting switch pressed.)

- ② To correct the 12/24-hour, press the time correcting switch, and the meter is set to the 12/24-hour correcting state.  
③ Press the mode switch to finish correction.

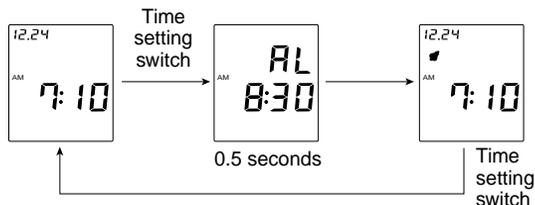
## 10. 12/24-hour System Correcting State



- ① Press the time setting switch to select 12-hour or 24-hour system. (If the time setting switch is pressed, system which is not currently selected starts flashing.)  
② Press the mode switch or time correcting switch to finish correction. The meter is set to the time indicating state.

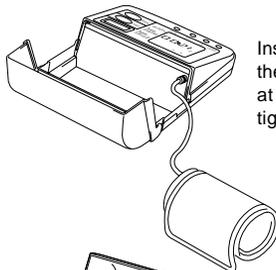
## 11. Turning ON/OFF the Alarm

- ① If the time setting switch is pressed while the bell mark (alarm) is turned off, the set alarm time is indicated for 0.5 seconds, then the bell mark lights up.

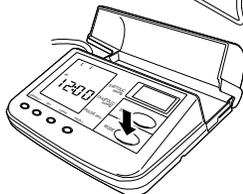


# MEASUREMENTS

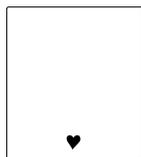
## 1. Selection of Measuring Mode



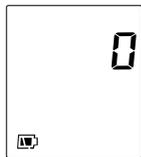
Insert the air connector from the cuff into the tube socket at the mainframe until it is tightly connected.



Press on the mode switch. While the time is indicated.



If the Mode switch is pressed, the mark of "♥" lights up and the buzzer sounds for one second.

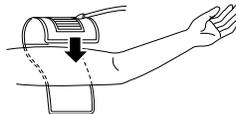


After the mark of "♥" goes off, the buzzer sounds three times at the interval of 100ms, then the meter is automatically set to the state to wait for pressurization.

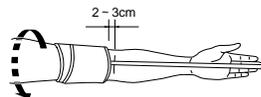
## 2. Attaching of Arm Cuff and Posture During Measurement



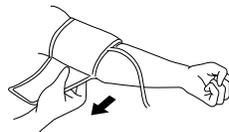
Unfasten and open the cuff as shown in the figure.



Wind the arm cuff around the left upper arm tightly so that bottom edge of the cuff is positioned about 2 – 3 cm above the elbow joint.



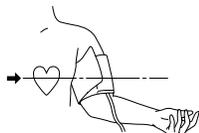
- When you will wind the cuff, please wind the cuff next to the skin of possible. (If measurement is made by rolling the shirts or jacket up over the arm, this will constrict the upper arm and prevent accurate measurement.)



- Rubber cuff hose should be placed on the inside of your arm on top of the arteria as figure.



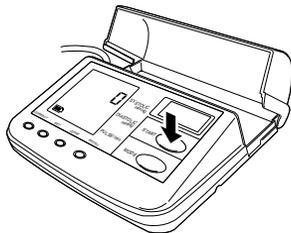
- Please make sure that the cuff is fastened tightly. Note that uneven cuff winding will prevent proper measurement.



Rest the elbow on a table so that the section of the upper arm is at the height of the heart. Relax the lower arm across the table and remain still, since movement - artifacts may falsify the measuring result.

Make measurements in either a seated or reclining posture with the palm turned upward.

### 3. To Start the Measurement



Press the "START Switch".

The arm cuff pressurizes when "START Switch" is pressed. When a measurement need be made again, the time between two measurements must be at least ten minutes.



After the "START Switch" is pressed, the pressure is automatically heightened to the level for measurement of the blood pressure.



When the pressure lowers by 15mmHg after pressurization stops, the mark of "♥" lights up.

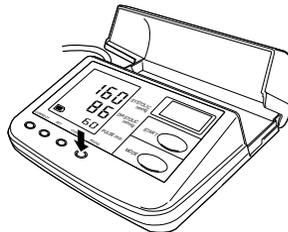


If the pulse is recognized, the pressure is shifted to the diastolic blood pressure display section and changed over, synchronized with the pulse.



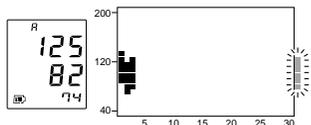
The buzzer sounds for two seconds, then the systolic blood pressure, diastolic blood pressure and pulse are indicated and the air is discharged. The measured data are registered automatically, as long as they are not error. If the measured data do not need to be stored, press the memory clear switch for 1 seconds or more while the measured data are indicated.

### 4. Memory Recall

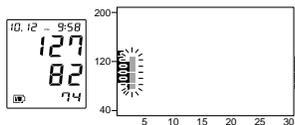


- ① If the memory recall switch is pressed, the memory No. is indicated for about 0.5 seconds, then the measured values (blood pressure, date of measurement) are indicated.
- ② Each time the memory recall switch is pressed and released quickly, the memory data are indicated one by one. If the memory recall switch is kept pressed, the memories are fed fast and only the memory Nos. are indicated.  
When the memory recall switch is released, the memory date are indicated.
- ③ When a new data is registered after 30 data, the oldest data is deleted and the newest one is registered.

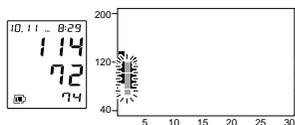
If the memory recall switch is pressed, the average values of the all stored data (systolic blood pressure, diastolic blood pressure, and pulse) are indicated first.



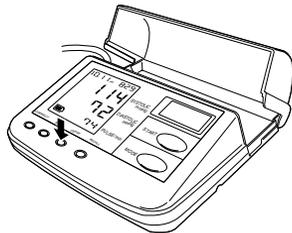
If the memory recall switch is pressed further, the newest data are indicated.



If the memory recall switch is pressed further, the old data are indicated in the order of the time series.



## 5. Deletion of Memory Data



- Press and hold the Memory clear switch for one second or longer while a data to be deleted is indicated on the digital indicator unit. After that data is deleted, the buzzer sounds for 100ms.
- To clear the all memory data, including the average values, press and hold the Memory clear switch for eight seconds.

## 6. Graphic Indication

- Data are indicated graphically only in the Measurements mode.

- The data at the left end has No. 1, and the newest data is at the right end.

### Caution:

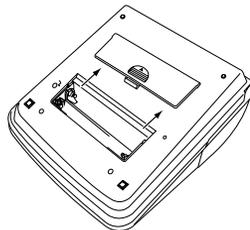
- A new blood pressure is registered automatically after it is measured.
- Memory recall function does not work during automatic inflation and blood pressure measurement are being made.
- By depressing of "Reset terminal" on the rear side of instrument, data (blood pressure value, pulse and date) are all cleared.

## 7. Automatic Mode Change Function

The blood-pressure meter is automatically set in the clock mode approximately 3 minutes after the blood pressure is measured.

## 8. Battery Replacement

If the batteries become weak, the " " mark will appear in the display, indicating that batteries should be replaced with new one. Dispose of the dead batteries properly to preserve the environment.



Remove the battery cover at mainframe and replace the four pieces of batteries.

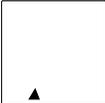
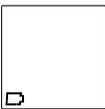
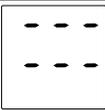
Type "AA" battery or equivalent is suitable for this blood pressure monitor.

Finish the battery replacement procedure within 2 minutes. If it takes more than 2 minutes to finish the procedure, the saved data will be lost. It is recommended to take notes of important data before replacing the battery.

	Batteries are dead.
	Battery will be dead soon. This is rough indication and dispersed, depending on batteries.
	Batteries are normal.

\* Depending on the battery, may not be on the display.

## DESCRIPTION OF DISPLAY MARKS

DISPLAY MARK	CONDITION/CAUSE	CORRECTIVE ACTION
	Measurement is begun, but the pressure was insufficient.	Repeat measurement again.
	Appears when the blood pressure could not be measured accurately. (Some noises were detected by the movement of arm during measurement.)	Repeat measurement again. First, exhaust air from the cuff, reapply the cuff properly and remeasure. Repeat measurement again.
	Appears when the pulse could not be measured.	
	Appears when the batteries become weak.	Replace the batteries.
	Device has a trouble.	Ask purchased shop.

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