Electronic Blood Pressure Monitor User manual

Model: BP-120



Please read this manual before switching the unit on.
Important safety information inside.

Content Page

1.Introduction....4
2.Intended Use....4
3.Safety....5
3-1.Symbol Descriptions....5
3-2.Safety Information....5
3-3.Classification....6
4.Product Structure....7
4-1.Body....7
4-2.Display....7
4-3.Cuff Size and Connection....8
5.Battery....9
5-1.Battery Installation....9
5-2.Battery Type and Replacement....9
5-3.Adapter Usage (Option)....10
5-4.Adapter Technical Features....10
6.Setting Mode....11
6-1.User Setting....11
6-2.Year Setting....11
6-3.Month and Date Setting....11
6-4.Time Setting....12
7.Measurement....13
7-1.Pre-Measurement....13
7-2.Fitting the Cuff....13
7-3.Measuring Procedure....15
8.About Blood Pressure....17
9.Care and Maintenance....18
10.Specification....19
11.Warranty Information....20
11-1.Statement....20
11-2.Warranty Information....20
12.EMC Declaration....21
12-1.Instructions for Use....21
12-2.Technical Description....22

1.Introduction

- Your new digital blood pressure monitor uses the oscillometric method of blood pressure measurement. This means the monitor detects your blood's movement through your brachial artery and converts the movements into a digital reading. An oscillometric monitor does not need a stethoscope, so the monitor is simple to use.
- Intelligent inflation will reduce the uncomfortable feeling by incorrect inflation, and shorten the measurement time, prolong the cuff's usage lifetime.
- 2x90 sets memory function, each measurement result will be displayed on the screen, and automatically stored. This unit has blood classification index, could easy to check your blood pressure.

2.Intended Use

- This automatic blood pressure monitor intends to measure the systolic pressure, diastolic pressure and pulse rate through upper arm.
- It's expected to be used at home or in the hospital, intended for people over 12 years old.
- Patients should be accompanied by a healthy person to use the equipment. Technical description is included in the user manual.Please read the user manualbefore use.

3.Safety Information

⚠To assure the correct use of the product, basic safety measures should always be followed including the WARNING and the CAUTION listed in the instruction manual.

3-1.Symbol Descriptions

The following symbols may appear in this manual, on the label, on the device, or on it's accessories. Some of the symbols represent standards and compliances associated with the device and its use.

⚠	WARNING: This alert identifies hazards that may cause serious personal injury or death
⚠	CAUTION: This alert identifies hazards that may cause minor personal injury, product damage, or property damage.
	Type BF applied part
	Manufacturer
SN	**SN** Specifies serial number
EC REP	Authorized Representative in the European Community
CE 0197	CE Mark: conforms to essential requirements of the Medical Device Directive Regulation (EU)2017/745.
	DISPOSAL: Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.
⎓	Direct current
	Follow instructions for use
MD	Indicates the product is a medical device
UDI	Indicates a carrier that contains unique device identifier information
⚠	**CAUTION** Consult accompanying documents

3-2.Consult accompanying documents

⚠ Those who have arrhythmia, diabetes, blood circulation or apoplexy problem, please use under the physician's instruction.

⚠ Contact your physician for specific information about your blood pressure. Self diagnosis and treatment which use measured results may be dangerous. Follow the instructions of your physician or licensed healthcare provider.

⚠ Please place on a high place where children can't be touched.

⚠ No modification of this equipment is allowed.

⚠ Do not modify this equipment without authorization of the manufacturer.

⚠ If this equipment is modified, appropriate inspection and testing must be conducted to ensure continued safe use of equipment.

⚠ The cuff hose around neck may cause the suffocation.

⚠ The swallowing of small part like packaging bag, battery, battery cover and so on may cause the suffocation.

⚠ If the user is allergic,please reduce the use of the product;if the case isserious, please timely seek medical advice.

⚠ Please don't use a dilution agent, alcohol or petrol to clean the unit. Please don't hit heavily or fall down the product from a high place. Use the right cuff, otherwise it can not work.

⚠ Never leave any low battery in the battery compartment since they may leak and cause damage to the unit.

⚠ Please take off the battery if you won't use in 3 months.

⚠ Replace the new batteries if the unit display a low battery symbol.

⚠ Do not mix the old and new batteries.

⚠ Do not use a cellular phone near the unit. It may result in operational failure.

⚠ Please avoid using in high radiant area in order to make your measuring data correctly.

⚠ Do not use the equipment where flammable gas (such as anesthetic gas, oxygen or hydrogen) or flammable liquid (such as alcohol) are present.

⚠ In case of product performance failure,please contact the manufacturer in time.

⚠ Please avoid using the product in unsuitable environment,for example: direct sunlight,damp and messy,close to the fire source,etc.

⚠ Please avoid maintenance or cleaning and disinfection during use.

⚠ **WARNING**

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact you local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

3-3.Classification

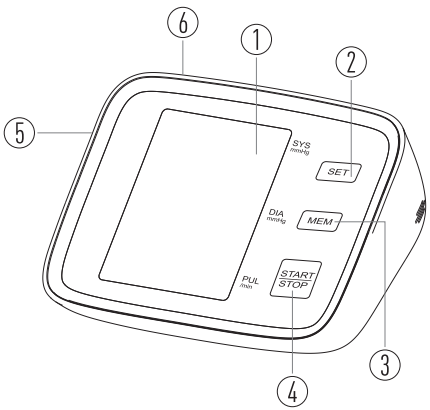
- Internally powered equipment
- Type BF applied part
- Protection against ingress of water or Particulate matter: IP20
- Not category AP/APG equipment
- Mode of operation: Continuous operation

⚠ The user must check that the equipment functions safely and see that it is in proper working condition before being used.

4.Product Structure

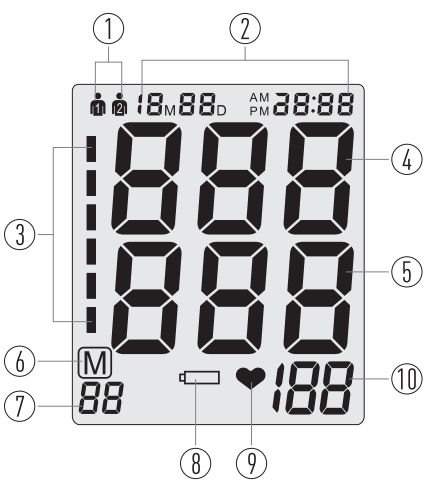
4-1.Body

1-LCD Display
2-Setting Button
3-Memory Button
4-Start/Stop Button
5-Air Socket
6-AC/DC Socket



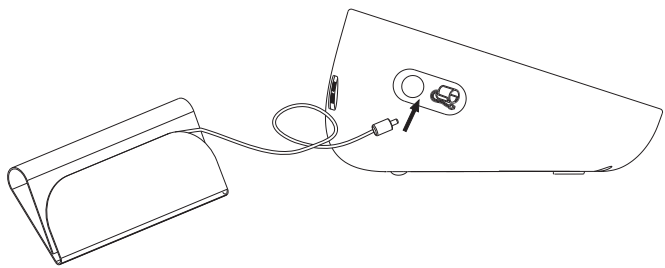
4-2.Display

1-User
2-Year/Month/Data/Time
3-Blood Pressure Classification
4-Systolic Blood Pressure
5-Diastolic Blood Pressure
6-Memory Symbol
7-Memory Times
8-Low Battery
9-Pulse Rate
10-Pulse



4-3.Cuff Size and Connection

- The accessories cuff is M size, for upper-arm circumference 22-36cm use, the cuff is treated as the applied part.
- Insert the connector with cuff tube into the hole which is on the left side of the device as picture.
- Only provided cuff can be used, can not change to any other branded cuff.



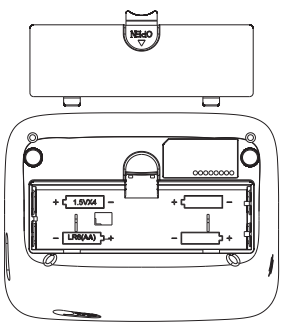
5.Battery

5-1.Battery Installation

1.Remove the battery cover from the battery compartment,insert the battery.

2.Insert 4 R6P AA powerful batteries into the compartment and ensure each battery is in the proper direction.

3.When power on, the low battery symbol "▭" will display once the unit start to work and you must replace with new batteries, otherwise the unit can't work.



5-2.Battery Type and Replacement

- Please use 4pcs AA identical 1.5V alkaline batteries.
- Do not use the batteries beyond their expiry date.
- Please remove the batteries if you do not need to use for long time.

⚠ **WARNING:** Dispose of the battery in accordance with all federal, state and local laws. To avoid fire and explosion hazard, do not burn or incinerate the battery.

5-3.Adapter Usage(Requirements)

1.When optional AC adapter should comply with the requirement of IEC 60601-1.Anybody connecting additional equipment to medical electrical equipment configures a medical system and is therefore responsible that the system complies with the requirements for medical electrical systems. Attention is drawn to the fact that local laws take priority over the above mentioned requirements. If in doubt, consult your local representative or the technical service department.

2.When using AC power, to avoid possible damage to the monitor, use only the exclusive AC adapter that can be purchased from authorized dealers. Other adapters may vary in output voltage and polarities.

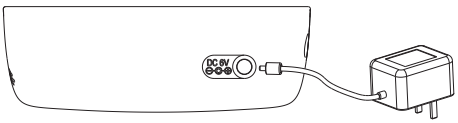
3.Insert the adapter plug into the hole on the backside of the unit as picture.

4.Insert the other side of the adapter into the outlet with 100-240V.

5.To remove the AC adapter, disconnect the adapter plug from the outlet first and then disconnect the cord from the unit's socket.

Note: When use AC adapter, the power of battery won't be consumed.

Note: When suddenly stop during measurement (like the plug off from the outlet by carelessness), it must be reinserted the plug into the unit, and restart the measurement.



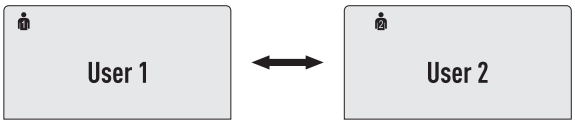
5-4.Adapter Technical Features

Output voltage	6V ± 5%
Max. output current	At least 600 mA
Output plug polarity	<+> inner
External diameter	5.5mm 0.1mm
Internal diameter	2.1mm 0.1mm

6.Setting Mode

6-1.User Setting

1.Press the **SET** Button when power off , the screen will display "1" or "2".
2.Press the **MEM** Button, it will be changed between "1" and "2".
3.Press the **SET** Button when you confirm the user, then it will enter into the Year setting mode.



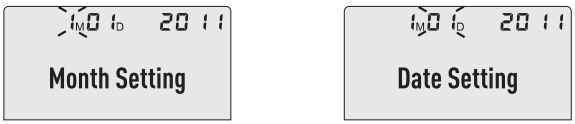
6-2.Year Setting

1.Continue to above step, the screen will display and flash 20XX, the last digit of the year will increase 1 when press the **MAM** Button each time, you could choose from 2001 to 2099.
2.Press the **SET** Button when you confirm the year, then it will enter into the month and date setting mode.



6-3.Month and Date Setting

1.Continue to above step, the screen will display xxM, xxD and xxxx, and keep flashing on month, the digit will increase 1 when press the **MEM** Button each time, you could choose from 1 to 12, press the **SET** Button when you confirm the month, then it will set the date.
2.Same as the month setting, each time you press the **MEM** Button, the digit will keep changing from 01 to 31.
3.Press the **SET** Button when you confirm the date, then it will enter into the time setting mode.

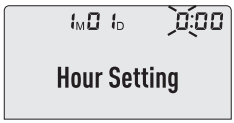


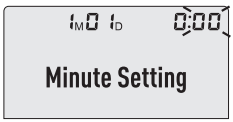
6-4.Time Setting

1.Continue to above step, the screen will display, xxMxxD and xx:xx, and keep flashing on the digits of hour, the digit will increase 1 when press the **MEM** Button each time, you could choose from 0 to 23.

2.Press the **SET** Button when you confirm the hour, then the digits of minute start to flash , same as the hour setting, each time you press the **MEM** Button the digits will keep changing from 00 to 59.

3.Press the **SET** Button when you confirm the minute, then the total setting mode is completed.





7.Measurement

7-1.Pre-Measurement

- Please keep quiet for 5-10 minutes, and avoid eating, drinking alcohol, smoking, exercising and bathing before taking measurement. All these factors will influence the measurement result.
- Remove any garment that fits closely to your upper arm.
- Always measure on the same arm (Normally left).
- Take measurement regularly at the same time of every day, as blood pressure changes even during the day.

Common factors of wrong measurement

- All efforts by the patient to support their arm can increase blood pressure.
- Make sure you are in a comfortable, relax position and do not activate any of the muscles in the measurement arm during measurement. Use a cushion for support if necessary.
- If the arm artery lies lower or higher than the heart, a false reading will be obtained.

Note:

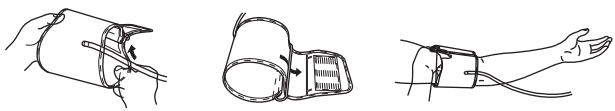
- Only use clinically approved cuffs!
- A loose cuff or a exposed bladder causes false reading.
- With repeated measurements .blood accumulates in the arm which can lead to false reading.
- Consecutive blood pressure measurements should be repeated after 1 minute pause or after the arm has been held up in order to allow the accumulated blood to flow away.

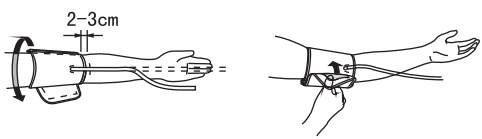
7-2.Fitting the Cuff

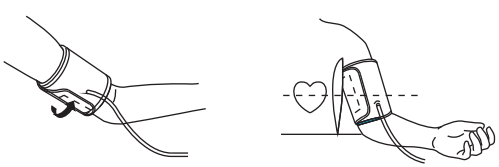
Product cuff is the application part of the human body.

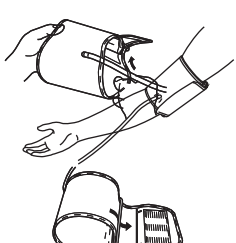
1.Put the cuff on a table flatly with the velcro side down. Pass the end of the cuff through the metal loop so that a circle is formed. The velcro closer will now be facing outwards (ignore this step if the cuff has already been prepared).
2.Push the cuff over the left upper arm so that the tube points in the direction of the lower arm.
3.Wrap the cuff on the arm as illustrated. Make certain that the lower edge of the cuff lies approximately 2 to 3 cm above the elbow and the rubber tube leaves the cuff on the inner side of the arm.
4.Tighten the free end of the cuff and close the cuff by affixing the velcro.
5.The cuff should be snug on your upper arm so That you can fit 2 fingers between the cuff and your upper arm. Any piece of clothing restricts the arm which must be taken off.
6.Secure the cuff with the velcro closer in such a way that it lies comfortably and not too tight Lay your arm on a table (palm upwards) so that the cuff is at the same height as the heart. Do not bend the tube.

Note: If it is not possible to fit the cuff to your left arm, it can also be placed on the right. However, all measurements should be made using the same arm.









7-3.Measuring Procedure

After the cuff has been appropriately positioned, the measurement can begin:

1.Press the **START/STOP** Button, all symbols appear on the display, then the pump begins to inflate the cuff, the rising pressure in the cuff is shown on the display.

2.After the suitable pressure has been reached, the pump stops and the pressure gradually falls. The cuff pressure is displayed. In case that the inflation is not sufficient, the device automatically re-inflates to a higher pressure.

3.When the device detects the signal, the heart symbol "❤" on the display starts to flash.

4.When the measurement has been completed, the systolic, diastolic and pulse rate will appear on the display.

5.The measurement readings remain on the display until you switch off the device. If no button is pressed for a period of 3 minutes, the device switches off itself in order to save the power.







Discontinuing a Measurement

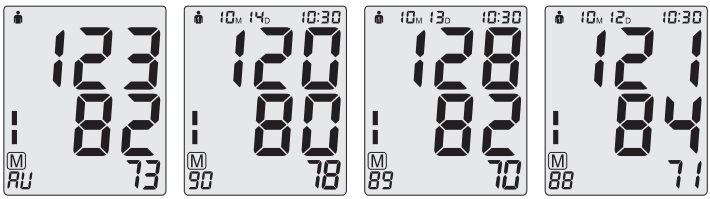
If it is necessary to interrupt a blood pressure measurement for any reason (eg. the patient feels unwell) the **START/STOP** Button can be pressed at any time. The device immediately decrease the cuff pressure automatically.

Memory-Recall of Measurements

This blood pressure monitor automatically stores 2x90 sets measurements value, the oldest record will be replaced by the latest measurement value when more than 90 sets each user.

Read Memory Record

Press the **MEM** Button when power off, the latest 3 times average value will be shown, press the **MEM** Button again, the last measurement value will be shown, as well as subsequent measurements can be display one after the other by pressing the **MEM** Button each time.

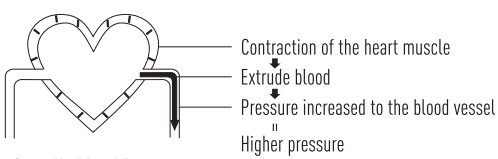


Memory-Clear of Measurements

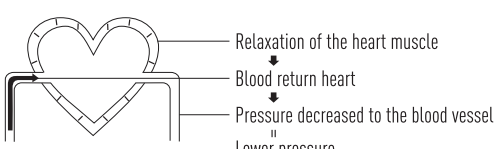
If you are sure that you want to permanently remove all stored memories. Press the **SET** Button for 6 times until "**CL**" appears when power off, press the **START/STOP** Button, "**CL**" will flash for 3 times to clear all the memories. After this press **MEM** Button, "**M**" and "**no**" will be shown on the display which mean that no memory in store.

About Blood Pressure

- Blood pressure is the pressure exerted the arteries.
- The systolic blood pressure value represents the blood pressure produced by contraction of the heart muscle.
- The diastolic blood pressure value represents the blood pressure produced by relaxation of the heart muscle.



Systolic Blood Pressure



Diastolic Blood Pressure

Please refer to the blood pressure classification of the World Health Organization/ISH.

8. Exceptional situations

Error indicators

The following symbol will appear on the display when measuring abnormal.		
Symbol	Cause	Correction
	Weak signal or pressure change suddenly	Wrap the cuff properly.
		Remeasure with correct way.
	External strong disturbance	When near cell phone or other high radiant, the measurement will be failed.
		Keep quite and no chatting when measure.
	It appears error during the process of inflating	Wrap the cuff properly.
		Make sure that the air plug is properly inserted in the unit.
		Remeasure.
	Abnormal blood pressure	Repeat the measurement after relax for 30 mins, if get unusual readings for 3 times, please contact your doctor.
	Low battery	Replace all the worn batteries with new ones.

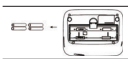
Trouble removal

Symbol	Cause	Correction
No power	Check the battery power	Replace new one
	Check the polarity position	installation for proper placement of the batteries polarities
No inflation	Whether the plug insert	Insert into the air socket tightly
	Whether the plug broken or leak	Change a new cuff
Err and stop working	Whether move the arm when inflate	Make sure that the air plug is properly inserted in the unit.
	Check if chatting when measured	Keep quite when measure
Cuff leak	Whether the cuff wrap too loose	Wrap the cuff tightly
	Whether the cuff broken	Change a new cuff
⚠	Please contact the distributor if you can't solve the problem, do not disassemble the unit by yourself!	

For other technical information or troubleshooting methods, please contact the manufacturer.

9.Care and Maintenance

Care for the main unit and blood pressure monitor cuff	
	Keep the unit in the storage case when no use.
	Clean the unit with soft dry cloth. Do not use any abrasive or volatile cleaners.
	Never immerse the unit or any component in water.
	Make sure the monitor is off prior to cleaning.
	Using a spray bottle, moisten a soft cloth towel with the soapy water until it is fully saturated Squeeze any excess moisture from the cloth to avoid any dripping or potential oversaturation of the cuff.
	Wipe all surfaces of the blood pressure monitor cuff thoroughly making sure to clean the inside and outside of the cuff. Be cautious not to get any moisture in the main unit.
	Using a dry cloth, gently wipe away any excess moisture that may remain on the blood pressure cuff. Lay the cuff flat in an unrolled position and allow the cuff to air dry.

Maintenance	
	Do not clean the body and cuff with naphtha, thinner or gasoline etc.
	Do not wet the cuff or attempt to clean the cuff with water.
	Store the unit in a clean and dry location. Do not subject the unit to extreme hot or cold temperature, humidity and direct sunlight.
	Remove the batteries if the unit will not be in 3 months or longer.
We won't be responsible for any quality problem if you don't care and maintain the product as instructed.	

10.Specification

Description	Automatic Upper Arm Blood Pressure Monitor	
Display	LCD digital display	
Measuring Principle	Oscillometric method	
Measuring Localization	Upper arm	
Measurement Range	Pressure	0~299 mmHg
	Systolic	50~255 mmHg
	Diastolic	30~200 mmHg
	Pulse	40~199 pulses/min
Accuracy	Pressure	±3mmHg
	Pulse	±5% of reading
LCD Indication	Pressure	3 digits display of mmHg
	Pulse	3 digits display
	Symbol	Memory/Heartbeat/Low battery
Memory Function	2x90 sets memory of measurement values	
Power Source	4pcs R6P (AA) alkaline battery DC. 6V	
Automatic Power Off	In 3 minutes	
Main Unit Weight	Approx. 219g (Batteries not included)	
Main Unit Size (LxWxH)	132x100x45mm	
Main Unit Lifetime	10000 times under normal use	
Battery Life	Could be used for 300 times for normal condition	
Accessories	Cuff, Instruction manual, Battery	
Operating Environment	Temperature	5 to 40°C
	Humidity	15% to 85%RH
	Air pressure	80kpa to 106kPa
Environment (Storage and Transport)	Temperature	-20 to 55°C
	Humidity	10% to 85%RH
	Air pressure	70kpa to 106kPa
	Avoid crash, sun burn or rain during transportation.	
Software Version	V0	
To enter the static pressure mode, contact the manufacturer.		

11.Warranty Information

11-1.Statement

- The intended use: the unit is intended to be used by adults at home or medical center to measure blood pressure and pulse rate from the upper arm.
- The unit satisfies the requirements of EN IEC 80601-2-30:2019 Medical electrical equipment-Part 2-30: Particular requirements for basic safety and essential performance of automated non-invasive sphygmomanometers.
- Blood pressure measurements determined with this device are equivalent to those obtained by a trained observer using the cuff/stethoscope auscultatory method, within the limits prescribed by the American National Standard, manual electronic, or automated sphygmomanometers.
- The risk of patient and user can be lowered to acceptable level.

11-2.Warranty Information

- The unit is guaranteed to be free of defects in workmanship and materials under normal use for a period of Two Years from the date listed on the purchase record.
- For repair under this warranty. Our authorized service agent must be advised of the fault with the period of the warranty. This warranty covers parts and labor only under normal operations. Any defect resulting from natural causes, eg flood, hurricane etc, is not within this guarantee This guaranty does not cover damage incurred. By use of the unit not in accordance with the instructions, accidental damage, or being tampered with or serviced by unauthorized service agents.
- Monitor subjected to misuse, abuse, and neglect of these manual content, non-instructional purposes: unauthorized repair or modifications will be excluded from this warranty.

⚠ The device requires no calibration.

⚠ The device is not repairable and contains no user serviceable parts.

12.EMC Declaration

IEC 60601-1-2 2014 ME EQUPMENT and ME SYSTEMS identification, marking and documents for Class B product.

12-1.Instructions for Use

- The ME EQUIPMENT or ME SYSTEM is suitable for home healthcare environments and so on.
- **WARNING:** Don't near active HF surgical equipment and the RF shielded room of an ME system for magnetic resonance imaging where the intensity of EM disturbances is high.
- **WARNING:** Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation, If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.
- **WARNING:** Use of accessories. transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.
- **WARNING:** Portable RF communications equipment(including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm(12 inches) to any part of the equipment (detail model name), including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.
- If any: a list of all cables and maximum lengths of cables (if applicable), transducers and other ACCESSORIES that are replaceable by the RESPONSIBLE ORGANIZATION and that are likely to affect compliance of the ME EQUIPMENT or ME SYSTEM with the requirements of Clause 7 (EMISSIONS) and Clause 8 (IMMUNITY). ACCESSORIES may be specified either generically(e.g shielded cable, load impedance) or specifically (e.g. by MANUFACTURER and EQUIPMENT OR TYPE REFERENCE).
- If any: the performance of the ME EQUIPMENT or ME SYSTEM that was determined to be ESSENTAL PERFORMANCE and a description of what the OPERATOR can expect if the ESSENTIAL PERFORMANCE is lost or degraded due to EM DISTURBANCES (the defined term "ESSENTIA PERFORMANCE" need not be used).

12-2.Technical Description

1.All necessary instructions for maintaining BASIC SAFETY and ESSENTIAL PERFORMANCE with regard to electromagnetic disturbances for the excepted service life.

2.Guidance and manufacturers declaration-electromagnetic emissions and Immunity.

Table 1

Guidance and manufacturers declaration electromagnetic emissions	
Emissions test	Compliance
RF emissions CSPR 11	Group 1
RF emissions CSPR 11	Class B
Harmonic emissions IEC 61000-3-2	Not application
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not application

Table 2

Guidance and manufacturer's declaration-electromagnetic Immunity		
Immunity Test	IEC 60601-1-2 Test level	Compliance level
Electrostatic discharge (ESD) IEC 61000-4-2	±8kV contact ±2kV, ±4kV, ±8kV, ±15kV air	±8kV contact ±2kV, ±4kV, ±8kV, ±15kV air
Electrical fast transient/ burst IEC 61000-4-4	Power supply lines: ±2kV Input/Output lines: ±1kV	Not application
Surge IEC 61000-4-5	Line (s) to Line (s): ±1kV Line (s) to Earth: ±2kV 100kHz repetition frequency	Not application
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0% 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270°and 315°. 0% 1 cycle and 70% 25/30 cycles Single phase: at 0 0% 300 cycle	Not application
Power frequency magnetic field IEC 61000-4-8	30A/m 50Hz/60Hz	30A/m 50Hz/60Hz
Conduced RF IEC 61000-4-6	150kHz to 80MHz 3Vrms 6Vrms (in ISM and amateur radio bands) 80% AM at 1kHz	Not application
Radiated RF IEC61000-4-3	10V/m 80MHz-2.7GHz 80% AM at 1kHZ	10V/m,9V/m, 27V/m, 28V/m 80 - 2700MHz & 385-5785MHz

Note: Ur is the a.c. mians voltage prior to application of the test level.

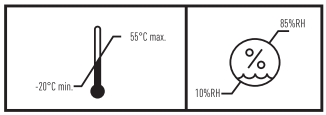
Table 3

Guidance and manufacturers declaration-electromagnetic Immunity

Radiated RF IEC 61000 - 4-3 (Test specifications for ENCLOSU RE PORT IMMUNITY to RF wireless communications equipment)	Test Frequency (MHZ)	Band (MHZ)	Service	Modulation	Modulation (W)	Distance (m)	Immunity test level (V/m)
	385	380-390	TETRA400	Pulse modulation 18Hz	1.8	0.3	27
	450	430-470	GMRS 460, FRS 460	FM ±5kHz deviation 1kHz sine	2	0.3	28
	710	704-787	LTE Band 13,17	Pulse modulation 217Hz	0.2	0.3	9
	745						
	780						
	810	800-960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation 18Hz	2	0.3	28
	870						
	930						
	1720	1700-1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation 217Hz	2	0.3	28
	1845						
	1970						
	2450	2400-2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation 217Hz	2	0.3	28
	5240	5100-5800	WLAN 802.11 a/n	Pulse modulation 217Hz	0.2	0.3	9
	5240						
	5785						

Shenzhen Everbest Machinery Industry Co., Ltd.
No.101-501, 19th Building & 21st Building, Baiwangxin Industrial Park, No.1002, Songbai Road, Yangguang Community, Xili Street, Nanshan District, Shenzhen, 518108, Guangdong, P.R. China
Tel:+86-755-27353188 www.cem-instruments.com

EC REP **Lotus NL B.V.**
Koningin Julianaplein 10, 1e Verd, 2595AA, The Hague, Netherlands.
Tel:+31644168999
E-mail:peter@lotusnl.com



CE 0197

Date No.: 20240118
Rev.20240118