Doppler Fetal Monitors

USER MANUAL

Part No.: YM-2T8~YM-2T9
Version No.: V1.0

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Chapter 1 Safety Guide and Symbols

Chapter 1 Safety Guide
NOTE:
Familiarize yourself with this user manual before attempting to operate the Doppler. Follow the operation and maintenance instructions to ensure proper use of it.

1.1 Intended Use/Indications for Use

The Ultrasonic Doppler are intended to be used by hospital, clinic and family users to listen to the fetal heart sounds in pregnant women, and to obtain the fetal heart rate, provide clinical diagnostic reference.

1.2 Safety Precautions

WARNING and CAUTION messages must be observed. To avoid the possibility of injury, observe the following precautions during the operation of the device.

WARNING

1.The intended use of YM-2T9/YM-2T8 Ultrasonic Doppler is clinical and cannot be used for treatment. If fetal heart rate results are not reliable, use other methods immediately, such as using a stethoscope.
2.This device is not explosion-proof and can not be used in the presence of flammable anaesthetics.
3.Exposure to ultrasound should be kept as low as reasonably achievable.

WARNING

4.Do not touch the signal input/output connector and the patient simultaneously.
5.Do not apply this device and other ultrasonic equipment simultaneously on the same patient, in case of possible hazard caused by leakage current superposition.
6.Do not apply this device simultaneously with other PATIENT-connected equipment, such as, a cardiac pacemaker or other electrical simulators, on the same patient.
7.The device is not protected against defibrillation.
8.Do not use the device with HF surgical equipment.
9.Only use the probes provided by the manufacturer.
10.Before using the battery, make sure to read the user manual and safety precautions thoroughly.
11.Do not heat or throw the battery into fire as this may cause explosion.
12.The device shall only be used when the battery cover is closed.
13.If the device is not used for a long time, please remove the battery.
14.Do not immerse, throw, or wet the battery in water/seawater.
15.Do not connect any equipment or accessories that are not approved by the manufacturer or that are not IEC 60601-1 approved to the device. The operation or use of non-approved equipment or accessories with the device is not tested or supported, and device operation and safety are not guaranteed.

WARNING

16.The appliance coupler or mains plug is used as isolation means from supply mains. Position the device in a location where the operator can easily access the disconnection device.
17.The device should not be used adjacent to or stacked with other equipment and that if adjacent or stacked use is necessary, the device should be observed to verify normal operation in the configuration in which it will be used.
18.The medical electrical equipment needs to be installed and put into service according to the EMC Information provided in this user manual.
19.Portable and mobile RF communications equipment can affect medical electrical equipment
20.Do not service or maintain the device or any accessory which is in use with a patient.
21.The device is ME unsafe. It is not intended for use in an MRI environment.

22.Magnetic and electrical fields are capable of interfering with the proper performance of the device. For this reason make sure that all external devices operated in the vicinity of the device comply with the relevant E.C. requirements. X-ray equipment or MRI devices are a possible source of interference as they may emit higher levels of electromagnetic radiation.

CAUTION

1.Federal (U.S.) law restricts this device to sale by or on the order of a physician.
2.Refer servicing to qualified service personnel.
3.The main unit is designed for continuous operation and is 'ordinary'. It is not waterproof; do not immerse it in any liquid (i.e. not drip or splash-proof).
4.Keep the device clean. Avoid vibration.
5.Do not sterilize the Doppler with autoclave or gas.
6.Electromagnetic Interference–Ensure that the environment in which the device is operated is not subject to any source of strong electromagnetic emissions, such as radio transmitters, mobile telephones, etc.
7.Check that the equipment does not have visible evidence of damage that may affect personnel's safety or examining capability before use. If damage is detected, replacement is recommended.
8.The device and accessories are to be disposed of according to local regulations after their useful lives. Alternatively, they can be returned to the dealer or the manufacturer for recycling or proper disposal. Batteries are hazardous waste. Do NOT dispose them together with house-hold garbage. At the end of their life hand the batteries over to the applicable collection points for the recycling of waste batteries. For more detailed information about recycling of this product or battery, please contact your local Civic Office, or the shop where you purchased the product.

1.3 Symbols

No.	Symbol	Definition
1		Headphones
2		ON/OFF switch
3		Speaker
4		Decrease
5		Increase
6		Battery
7		Caution
8		Operating in structions
9		TYPE BF APPLIED PART
10	CE 0123	CE marking
11		Disposal method
12	IPX1	The device is protected against splashing water. Water splashed against the enclosure from any direction shall have no harmful effects.
13	P/N	Part Number
14	SN	Serial Number
15		Date of manufacture
16		Manufacturer
17	EC REP	Authorised Representative In The European Community
18		General symbol for recovery/recyclable
19	Rx Only	Caution: Federal (U.S.) law restricts this device to sale by or on the order of a physician
20		Refer to User Manual (Background: Blue; Symbol: White)
21		Non-ionizing electromagnetic radiation
22	MR	MR Unsafe–Keep away from magnetic resonance imaging (MRI) equipment
24		Fetal heart sound signal

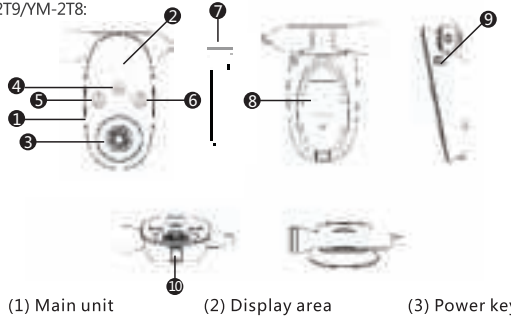
Chapter 2 Introduction

NOTE

The pictures and interfaces in this manual are for reference only.

2.1 Main Unit

YM-2T9/YM-2T8:



(1) Main unit (2) Display area (3) Power key
(4) Volume Up key (5) Volume Down key (6) probe
(7) Battery covey (8) probe interface (9) Headphone

2.2 Display

2.2.1 YM-2T8 digital display with menu setting
2.2.2 YM-2T9 digital and waveform display with menu setting
2.2.3 Explanations of displayed contents

No	Symbol	Explanations
1	♡	Fetal heart sound signal
2	MHZ	Frequency unit
3	AVG	Average FHR
4		Battery power
5		Volume
6	— — —	No FHR value, indicating that the transducer is poor connected or there is no fetal heart sound signal
7	X MHZ	Frequency of the transducer connected to the main unit
8	7	Speaker volume

2.3 Control keys

2.3.1 Volume Down key
Press ⌄ to decrease the volume if the sound is too loud when the Monitor is switched on or works.

2.3.2 Volume Up key
Press ⌃ to increase the volume if the sound is too low when the Monitor is switched on or works.

2.3.3 Power switch
Long press ⏻ for two sec to switch on the Monitor, and then long press ⏻ for two sec again to switch it off.

2.3.4 Mode setting

YM-2T8 setting:

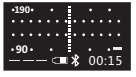
When the Monitor is switched on, the display interface is the original interface

Press ⏻ once, and the display interface will be the parameter setting interface

YM-2T9 setting

When the Monitor is switched on, the display interface is the original interface

press ⏻ again, and the display interface will be the parameter setting interface .



2.3.5 Parameter setting

After the parameter setting interface is displayed, press ⌃ to select the parameters in order. After selecting a parameter, press ⌄ to adjust the parameter. (Parameter Explanation Form)

2.3.6 Parameter Explanation Form

Settings	
Rate(mm/min)	20
FHR Alm	OFF/NO
FHR Alm Hi	240
FHR Alm LO	4
AVG	15

(Parameter Setting List)

2.3.6.1 Scanning speed
It indicates the display speed of curve under the curve display mode.
2.3.6.2 FHR alarm
Start the FHR alarm, and an alarm will be triggered when the FHR is lower or higher than the limit.
2.3.6.3 Higher FHR alarm and lower FHR alarm
After setting the upper or lower limit parameter of FHR, an alarm will be transferred if the measured result exceeds the preset parameter.
2.3.6.4 Average FHR
Average movement time. (For example, the above parameter is to average the FHR of the past 15 sec)

2.4 Probe

The average frequency of the probe is 2.0MHz.
NOTE:
The main unit is not waterproof. Do not immerse it in any type of liquid.

CAUTION

1. Do not immerse the probe (and the probe cable) in any liquid.
2. Do not stretch the probe cable for more than two meters.

NOTE:
Any changes or modifications to this unit not expressly approved by the party responsible
for compliance could void the user's authority to operate the equipment.

Chapter 3 Basic Operation

3.1 Opening Package and Checking

Open the package; take out the Doppler and accessories carefully. Place them on a flat, clean surface.

Keep the package for possible future transportation or storage. Check the components according to the packing list.

- Check for any mechanical damage.
- Check the cable and accessories.

If there is any problem, contact us or your local distributor immediately.

3.2 Using Batteries

3.2.1 Battery removal

Place the Monitor upside down, hold
the body of the Monitor
with a hand, and press the strip on the battery compartment
with a finger of the other hand, and move along the direction of arrow, to take out the battery.

3.2.2 Battery installation

Open the battery cover and put the battery into the battery compartment.

3.2.3 Closing the battery compartment

Push the battery cover along the direction opposite to that of taking out the battery until it reaches the position to close the battery compartment.

3.3 Probe operation

Hold the body of the Monitor with a hand, take the connector of the probe and plug it into the port of the Monitor with the other hand.

Note: when switching on the Monitor, do not connect or remove the probe. The probe should be connected before switching on and removed after switching off.

3.4 Battery replacement

When the Monitor prompts the low battery, you should timely replace the battery with an AA battery.

3.5 Special notes

3.5.1 The Monitor is internally installed with precise electronic lines. Please do not open the equipment without permission.

3.5.2 The exterior surface of the Monitor may be wiped and cleaned with non-corrosive detergent. Do not disinfect it under high temperature or clean it with corrosive detergent. The
probe may be wiped and disinfected with a small amount of alcohol.

3.5.3 Clean and disinfect the Monitor with a dry cloth or tissues after each use.

3.5.4 It is recommended to use the alkaline high energy battery. Using a battery of poor quality may result in serious damage to the Monitor due to electric leakage

3.5.5 If the Monitor is not used for long term, please remove the battery for storage. Waste batteries should be disposed of according to the local environmental protection requirements.

3.5.6 Avoid collision to prevent damage of the Monitor.

3.5.7 Please keep the Monitor away from water and moisture.

3.5.8 The Monitor is an FHR monitoring tool, and cannot replace the routine fetal monitoring instruments. If the FHR result is questionable, please immediately use other methods, such as using a stethoscope, to verify the result.

3.5.9 Ensure that the using environment is not subject to any source of strong electromagnetic interference, such as radio transmitters or mobile phones.

3.5.10 The Monitor is suitable for short-time intermittent use.

3.5.11 Please use the Monitor under the guidance of professionals.

3.5.12 Use water or oil instead of the coupling gel if the patient is sensitive to the coupling gel.

3.5.13 Using mismatched earphones will affect the audition effect.

3.5.14 This product is allowed to be transported by air, sea and land after being packed. Open storage is not allowed during transportation.

3.6 Care of Batteries

WARNING

1.Close the battery compartment before using the main unit or the probe.
2.Do not expose the batteries to high temperature, heat them or dispose of them in fire.
3.Short circuit should be avoided.

CAUTION

1.If the Doppler is not used for an extended period, remove the batteries and keep the batteries in a cool and dry environment. The environment temperature must not exceed the range of -20°C ~ +55°C (-4°F ~ +131°F).
2.The batteries must be properly disposed according to local regulations after their useful life.

3.7 Using Wired Probe

3.7.1 Probe Socket

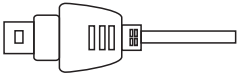
YM-2T9/YM-2T8 adopts wired probes. The probe cable is a telephone cable with a standard
micro USB plug on each terminal.
micro USB Interface:

1 Power 2 Signal Wire
3 Signal Wire 4 GND

3.7.2 Connecting and Disconnecting a Wired Probe

To connect the wired probe to the main unit:

1 Take out the probe cable from package. Insert one modularplug of the cable into the probe socket of the main unit.



To disconnect the probe, press the housing of the modular plug and then pull it out.

Modular Plug

3.8 Switching On

CAUTION

To avoid unwanted noise, do not take out or place the probe when the main unit is on. Remember to take out the probe before switching on the main unit, and place the probe after switching off the main unit.

To switch on the main unit:

Pick up the probe and then press the ON/OFF key on the main unit.

3.9 Switching Off

When the examination is finished, switch off the main unit, wipe the remaining gel off the probe with a clean soft cloth and then place the probe back into the holder.

To switch off the main unit, perform any one of these operations:

1) Press the ON/OFF key on the main unit.
2) Put the probe into the probe holder.

3) Auto shut off. If the main unit does not receive signal for a period of time, it will be switched off automatically.

3.10 Using Earphone

In a noisy environment, you are advised to use an earphone to hear fetal heart sound. Insert the earphone plug into earphone socket on the back of the main unit. The speakers will be muted when the earphone is connected.

WARNING

Turn down the volume before using earphone to your ears.

CAUTION

Accessory equipment connected to the analog and digital interfaces must be certified according to the respective IEC/EN standards (e.g. IEC/EN 60950 for data processing equipment and IEC/EN 60601-1 for medical equipment). Furthermore all configurations shall comply with the valid version of the system standard IEC/EN 60601-1. Anybody who connects additional equipment to the signal input connector or signal output connector to
configure a medical system must ensure that the system complies with the requirements of the valid version of the system standard IEC/EN 60601-1. If in doubt, consult our technical service department or your local distributor.

Chapter 4 FHR Examining

WARNING

1.Always check if the main unit and the probe are in good condition prior to use.
2. To avoid inaccurate diagnosis: (a) relocate the probe for the best FHR signal as the fetal position changes; (b) when intrauterine fetal death is doubted by using this examination method, try to verify it with other methods.

CAUTION

Handle the probe with care. Do not drop it on hard surfaces.

The 2MHz obstetrical probes are designed for FAR examining. The 2MHz probe is optimized for deep penetration and is widely used in the third trimester pregnancy.

Follow these procedures to perform FAR examining:

1. Feel the position of the fetus by hand to find the best position to detect the fetal heart.
2.Switch on the Doppler and the probe.
3.Apply a small amount of coupling gel to the acoustic face of probe; place the probe face at the best position for detecting fetal heart. Angle the probe to obtain an optimum audio signal.

Adjust the volume if required.

When an audible fetal heart signal is detected, a clear fetal heart sound will be heard from the speakers/earphone, and numeric FAR value will be displayed on the **OLD.**

NOTE:

1.The best quality records will only be obtained if the probe is placed in the optimum position.
2.Positions with strong placental sounds or umbilical blood flow sound should be avoided.
3.If the fetus is in the cephalic position and the mother is supine, the clearest heart sound will normally be found on the midline below the umbilicus. During examining , the pregnant woman’ s prolonged lying in the supine position should be avoided owing to the possibility of supine hypotension. Sitting up or lateral positions are preferable and may be more comfortable.
4.It is not possible to obtain accurate FAR unless an audible fetal heart signal is detected. If the calculated FAR is not in accordance with the beat of the fetal heart sound, the fetal heart sound auscultation result shall prevail.
5.When applied to the patient, the ultrasound probe may warm slightly (less than 8°C(46.4°F) above ambient temperature). When NOT applied, the ultrasound probe may reach the highest temperature of 8°C (46.4°F).
6.Maternal heart will be detected if the probe is strongly placed on maternal vessel.

Chapter 5 Maintenance and Cleaning

5.1 Inspection

(1) Visual Inspection

Prior to using the device every time, do the following inspections:

- Check the device and accessories to see if there is any visible evidence of damage thatmay affect patient safety.
- Check if the device functions properly to make sure it is in good condition.

If any damage is detected, stop using the device on the patient. Replace the damage part(s) or contact the manufacturer for service before reusing it.

(2) Routine Inspection

The overall check of the device, including safety check and function check, should be performed by qualified personnel every 6 to 12 months, and each time after service. The equipment should undergo periodic safety testing to ensure proper patient isolation from live parts. This should include leakage current measurement and insulation testing. The recommended testing interval is once a year or as specified in the institution’ s test and inspection protocol.

(3) Mechanical Inspection

Make sure all exposed screws are tight.

Check the external cables for splits, cracks or signs of twisting.

Replace any cable that shows serious damage.

WARNING

Failure on the part of the responsible individual hospital or institution employing the use of this equipment to implement a satisfactory maintenance schedule may cause undue equipment failure and possible health hazards.

CAUTION

The maintenance must be performed by professional personnel.

5.2 Maintenance

Avoid scratching and damaging the OLED. The gathering of dew on the OLED may occur with abrupt temperature or humidity changes. A table environment is recommended for the main unit.

Keep the exterior surface of the main unit clean, free of dust and dirt.

Handle the probe with care to avoid damaging the cover, piezoelectric crystals and mechanical movement. Do not contact the probe with hard or sharp objects.

Do not excessively flex the probe cable.

Wipe the remaining gel off the probe after use.

Keep the probes in a dry environment, where the temperature should be lower than 45°C.

5.3 Cleaning

To clean the main unit:

Switch off the Doppler and unplug it from power supply. Clean the case using a soft cloth dampened with mild near neutral detergent, ethanol (75%) or isopropanol (70%), and then wipe it dry with a dry cloth immediately. The recommended cycle is one week or when needed.

Clean the probe after each use to avoid cross infection and prolong its useful life.

To clean the probe:

Clean it using a soft cloth dampened with mild near neutral detergent, ethanol (75%) or isopropanol(70%), and then wipe it dry with a dry cloth immediately.

CAUTION

1.Do not use strong solvent such as acetone.

2.Do not use an abrasive such as steel wool or metal polish.

3.Neither the main unit nor the probe is waterproof; do not immerse any part of them in liquid. Entry of liquid into the Doppler may destroy the equipment.

4.Do not allow any liquid remain on the surface.

5.4 Disinfection

In normal use the main unit does not need disinfection. In case of being soiled, clean the main unit case and then disinfect it by wiping it with a soft cloth dampened with ethanol (75%) or isopropanol (70%). Then wipe it dry with a dry cloth.

After each use, clean the probe and then disinfect it by wiping it with a soft cloth dampened with ethanol (75%) or isopropanol (70%).Then wipe it dry with a dry cloth.

5.5 Sterilization

Do not sterilize the Doppler, unless this is necessary according to your hospital regulation.

NOTE:

After cleaning or disinfection, check if the Doppler function well. If any problem is detected, please contact the manufacturer for service before reusing them.

Checking Item	Checking Method
Visual Check	Inspect the Doppler for any damage.
Function Check	Check if the Doppler can be switched on or off properly When the Doppler is switched on, check if works or not. touch the probe faceplate gently with your hand and check if the Doppler gives out sound normally.

Chapter 6 Warranty and Service

6.1 Warranty

Warrants that products meet the labeled specifications of the products and will be free from defects in materials and workmanship that occur within warranty period.

The warranty is void in cases of:

a) damage caused by mishandling during shipping.

b) subsequent damage caused by improper use or maintenance.

c) damage caused by alteration or repair by anyone not authorized by .

d) damage caused by accidents.

e) replacement or removal of serial number label and manufacture label.

If a product covered by this warranty is determined to be defective because of defective materials,

components, or workmanship, and the warranty claim is made within the warranty period, will, at its discretion, repair or replace the defective part(s) free of charge. will not provide a substitute product for use when the defective product is being repaired.

6.2 Contact information

If you have any question about maintenance, technical specifications or malfunctions of devices, contact your local distributor.

Chapter 7 Product Specifications

7.1 Environmental Specifications

Working	Temperature:	10℃ ~+ 40℃ (+50℉ ~ +104℉)
	Relative Humidity:	15% RH ~ 85% RH (non-condensing)
	Atmospheric Pressure:	70kPa ~ 106kPa
Transport and Storage	Temperature:	-20℃ ~ +55℃ (-4℉ ~ +131℉)
	Relative Humidity:	10% RH ~ 95% RH (non-condensing)
	Atmospheric Pressure:	58kPa ~ 106kPa

7.2 Physical Specifications

Dimensions and Weight	Dimensions	Main Unit: 136mm (L) ×70mm (W) ×41 mm (H)
	Weight:	Main Unit:0.22 kg (with battery and probe)
Power Supply	Main unit	
	Input current:	D.C.3V
	Operating Frequency:	2. 0 MHz 5
	FHR:	comprehensive sensitivity: greater than 90db
	Battery:	2×1.5V AA alkaline batteries
Standards Compliance	AAMI / ANSI ES60601-1:2005/(R)2012 AndA1:2012,IEC 60601-1-2:2014,IEC60601-1-11:2015, IEC 60601-2-37 :2015, NEMA UD 2-2004 (R2009)	

Anti-electric Shock Type	Internal power supply
Anti-electric Shock Degree	Type BF applied parts
Degree of Protection against Harmful Ingress of Water	Main Unit: IP22
	Probe: IPX7
Degree of Safety in Presence of Flammable Gases	Equipment not suitable for use in presence of flammable gases
Disinfection/Sterilizing Method	Refer to this user manual for details
EMC	CISPR 11 Group1 Class B
Earth Leakage Current (Limit):	N.C. 500 μA S.F.C. 1000 μA
Enclosure Leakage Current (Limit):	N.C. 100 μA S.F.C. 500 μA
Patient Leakage Current (Limit):	N.C. S.F.C. d.c. 10 μA 50 μA a.c(BF) 100 μA 500 μA
Display:	Effective display area: 157mm2 30%
Ultrasonic Gel:	pH: 5.5~8.0

7.3 Performance Specifications

FHR Performance (Essential Performance):	FHR Measurement Range: 50-210 (BPM: sub/ minute)
	Accuracy: ±2bpm
FHR Resolution:	1 bpm
Auto Shut off:	1-minute/3-minute no signal and no operation
Ultrasound:	
Nominal Frequency:	2MHz
Working Frequency:	(2.0 ± 5%)MHz
2MHz Wired probe:	I_{ob}<20 mW/cm ^{2}
p-< 0.1MPa	
I_{spta}< 100mW/cm ^{2}	
I_{sata}< 20 mW/cm ^{2}	
W0<50mW	
Working Mode:	Continuous wave Doppler
Effective Radiating Area of Probe:	157mm ^{2}±30%

Appendix 1 EMC Information

A1.1 Electromagnetic Emissions

Guidance and manufacturer's statement - Electromagnetic emission		
YM-2T9 / YM-2T8 Ultrasonic Dopple Expected to be used In the electromagnetic environment of the following provisions, YM-2T9 / YM-2T8 Ultrasonic Dopple buyers or users should ensure that it is used in this electromagnetic environment:		
Emission test	**Compliance**	**Electromagnetic Environment-Guidance**
RF emissions CISPR 11	Group 1	The YM-2T9/YM-2T8 Ultrasonic Dopple uses RF energy for its internal functions only. Therefore, its RF emissions are low and may not cause any interference with nearby electronic equipment.
RF emissions CISPR 11	Class B	The YM-2T9 / YM-2T8 Ultrasonic Dopple is suitable for use in all facilities, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/flicker emissions IEC61000-3-3	Not applicable	

A1.2 Electromagnetic Immunity

Guidance and manufacturer's declaration - Electromagnetic Immunity			
YM-2T9/YM-2T8 Ultrasonic Dopple Expected to be used In the electromagnetic environment of the following provisions, YM-2T9 / YM-2T8 Ultrasonic Dopple buyers or users should ensure that it is used in this electromagnetic environment:			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment guidance
Electrostatic discharge(ESD) IEC 61000-4-2	±8 kV contact ±2 kV,±4 kV,±8 kV,±15 kV air	±8 kV contact ±2 kV,±4 kV,±8 kV,±15kV air	Floors shouldbe wood,concrete or ceramictile. If floors are coveredwith synthetic material, the relative humidity shouldbe at least 30%.
Electrostatic transient/burst IEC 61000-4-4	±2 kV for power supply lines 100 kHz repetition ±1 kV for input/output lines frequency	N/A	N/A
Surge IEC 61000-4-5	±0.5kV, ±1kV differential mode line-line	N/A	N/A
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0%UT (100%dip in UT) for 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270°, and 315° 0%UT (100% dip in UT) for 1 cycle at 0° 70%UT (30% dip in UT) for 25/30 cycles at 0° 0%UT (100%dip in UT) for 250/300 cycle at 0°	N/A	N/A
Power frequency (50/60 Hz) magnetic field IEC61000-4-8	30A/m,50/60Hz	30A/m,50/60Hz	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note: UT is the a.c.mains voltage prior to application of the test level.			

A1.3 Electromagnetic Immunity

Guidance and manufacturer's declaration - Electromagnetic Immunity			
YM-2T9/YM-2T8 Ultrasonic Dopple Prospective applicants or users of the YM-2T9 / YM-2T8 Ultrasonic Dopple should ensure that they are used in this electromagnetic environment in the electromagnetic environment specified below:			
RF conduction IEC 61000-4-6	3 Vrms 150kHz to 80MHz 6 Vrms 150 kHz to 80 MHz outside ISM bands a	N/A	cables. This distance should be calculated from the formula corresponding to the transmitter frequency. Recommended isolation distance $d = \left[\frac{3.5}{V_1}\right]\sqrt{p}$

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RF radiation IEC 61000-4-3	10V/m 80MHz to 2,7GHz	10V/m	$d=\left[\frac{3.5}{E_1}\right]\sqrt{P}$ 80MHz to 800MHz $d=\left[\frac{7}{E_1}\right]\sqrt{P}$ 800MHz to 2.7GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters(m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range Interference may occur in the vicinity of equipment marked with the following symbol: 

Note 1: In the 80MHz and 800MHz frequency, the higher frequency band formula.
Note 2: These guidelines may not be suitable for all situations. Electromagnetic propagation is affected by the absorption and reflection of buildings, objects and the human body.

a)Fixed-launch airport strengths such as base stations for amateur (cellular / cordless) phones and terrestrial mobile radios, amateur radio, AM (AM) and FM (radio frequency) broadcasts, and television broadcasts, whose field strengths are not theoretically Accurately predict. In order to assess the electromagnetic environment of a fixed RF transmitter, a survey of electromagnetic locations should be performed. If the field strength of the YM-2T9 / YM-2T8 Ultrasonic Dopple is measured to be higher than the RF compliance level of the above application, observe the YM-2T9/ YM-2T8 Ultrasonic Dopple to verify that it is working properly. If abnormal performance is observed, additional measures may be necessary, such as reorienting or positioning the YM-2T9/ YM-2T8 Ultrasonic Dopple.
b)In the entire frequency range of 150KHz ~ 80MHz, the field strength should be lower than 3V / m.

A1.4Recommended Separation Distances

Recommended separation distances between portable and mobile RF communication devices

The YM-2T9/YM-2T8 Ultrasonic Dopple is intended for use in electromagnetic environments where radiation RF harassment is controlled. YM-2T9/YM-2T8 Ultrasonic Dopple buyers or users can use the following recommended maintenance of portable and mobile RF communication devices (transmitters) and YM-2T9/YM-2T8 Ultrasonic Dopple depending on the maximum output power of the communication device Between the minimum distance to prevent electromagnetic interference.

Rated maximum output of transmitter/W	Separation distance according to frequency of transmitter/m		
	150 kHz to 80 MHz	80 MHz to 800MHz	800 MHz to 2.7GHz
	$d=\left[\frac{3.5}{V_1}\right]\sqrt{P}$	$d=\left[\frac{3.5}{E_1}\right]\sqrt{P}$	$d=\left[\frac{7}{E_1}\right]\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For the transmitter rated maximum rated output power not listed above, the recommended separation distance, d, in meters (meters), can be determined using the formula in the appropriate transmitter frequency column, where P is the transmitter manufacturer's Transmitter maximum output rated power, in watts (W) as a unit.
Note 1: At 80 MHz and 800 MHz frequencies, the formula for the higher frequency range is used.
Note 2: These guidelines may not be suitable for all situations. Electromagnetic propagation is affected by the absorption and reflection of buildings, objects and the human body.