Angelcare AC101

Technical Description

1. Introduction

The Angelcare AC101 is a 2 channel (49MHz) baby monitor. The whole unit is divided into three main parts as follows:

a. A parent unit.
b. A nursery unit.
c. A sensor pad.(optional)

2. Functional Blocks and Circuit Description of the Parent Unit

2.1 Antenna

ANT is a point for receiving signal through antenna.

2.2 Receiver amplifier

It amplifies the incoming RF signal and rejects the unwanted signal at other frequencies.

2.3 Mixer

There is an oscillator signal to mix the RF signal and pass through a filter to produce an IF signal.

2.4 FM detector

The FM signal is demodulated into baseband audio.

2.5 Speaker amplifier

It receives the audio signal and amplifies it to the speaker.

2.6 Voltage regulator

It regulates the input dc or ac 9V to 5V to provide power to the circuit.

2.7 Low battery detector

It detects the battery dropping and sends a signal to inform MCU.

3. Functional Blocks and Circuit Description of the Nursery unit and the Sensor Pad

3.1 Power supply

78L05 regulates the input dc 9V to 5V which provides power to every part of the circuit.

3.2 Microphone

It receives the baby's voice or crying.

3.3 Audio amplifier

It transmits the audio signal to the FM modulator.

3.4 FM modulator and Transmitter oscillator

The oscillator produces at the FCC assigned channel frequencies which mixs the modulated signal come from FM modulator and send out the resultant signal.

3.5 Transmitter amplifier

It amplifies the outgoing RF signal to the antenna..

3.6 MCU

The heart of the baby monitor is MCU that communicates with the parent unit and the sensor pad. It receives the signal sending from the sensor pad and will make an alarm if necessary. It receives the audio signal and sends RF signal to the parent unit.

3.7 Buzzer

It makes beep sound if it receives an alarm signal sending from the MCU.

3.8 LEDs

The LEDs indicate the conditions of Power, Alarm and Breathing.

3.9 Sensor pad

It is a sensor for detecting breathing pulse of a baby and sends a signal to the MCU.

4. Operation Manual for the Angel

4.1 Parent Unit

4.1.1 This unit can be turned ON by -- switching the power I, II or III.
-- using voltage source 9V DC.

4.1.2 The power LED will be light -- when the unit is ON.

4.1.3 In order to get a clear reception -- select a channel A or B.

4.1.4 Sound can be heard through SPK-- when the nursery unit gets signal.

4.2 Nursery Unit and Sensor Pad

4.2.1 The unit will be ON by	--	switching the power "Sound Only" or "Sound & Breathing" mode.
	--	using voltage source 9V DC only.
4.2.2 The power LED will be light	--	when the unit is ON.
4.2.3 In order to get a clear reception	--	select a channel A or B.
4.2.4 Sensor Pad connecting with the nursery unit for use	--	when in "Sound & Breathing" mode only.
4.2.5 The microphone can be used	--	whether in "Sound & Breathing" or "Sound Only" mode.
4.2.6 The Breathing LED flashs	--	when sensor pad receives signal continuously in "Breathing" mode.
4.2.7 "Tick" sound can be heard	--	when switch "Tick" is ON and "breathing" signal is received.
4.2.8 The Alarm LED will flash and beep sound is heard	--	if no "breathing" signal is received for a while.