[0038] Furthermore, it is preferred to have a channel classification function in the TV item for managing the CATV channels, so as to gather the channels of the same type together for being controlled by a specific button. Therefore, when the specific button is selected to perform channel selection, the TV program is switched only among those channels of the corresponding type instead of all the channels. The procedure to program the channel classification function will be described hereinafter.

[0039] From the operation of the TV item, it is known that a menu for controlling a specific electrical appliance will be present when an item in the main menu displayed on the touch-type screen **11** is selected. By further changing the displayed page on the screen, the user is able to remotely control the appliance by using only the one touch-type screen **11**.

[0040] As to the macro button (M), it is a hot key to provide the macro function. When the macro button (M) is touched, a macro menu is selected, as shown in **FIG. 4**, which presents multiple macro keys. The macro menu may have several pages for providing a plurality of macro keys. By operating the previous page button **111** and the next page button **112**, a desired page can be selected. An appropriate macro key in the page of the macro menu can be touched to execute a series of operations corresponding to multiple buttons almost simultaneously. However, the remote control codes corresponding to the buttons defined in a macro key are not transmitted at the same time. On the contrary, the remote control codes are sequentially transmitted and a delay is inserted between two of them, such that some electrical appliances can be properly powered on before receiving another remote code. The duration of delay can be programmed by the user. A detailed procedure to set the duration of the delay is given in **FIG. 13**.

[0041] With reference to **FIG. 1** again, the basic button set **20** includes a power on button **21**, a power off button **22**, a menu/setting button **23**, a mute/enter button **24**, a channel-up/play button **25**, a channel-down/stop button **26**, a volume/backward button **27**, and a volume/forward button **28**. In addition to activating the touch-type screen **11** to display the main menu, the menu/setting button **23** can be used to provide a setting function. A screen of a setting menu, as shown in **FIG. 5**, is displayed on the touch-type screen **11** when the menu/setting button **23** is pressed continuously for several seconds. The items to be set in the setting menu includes the 'clock', 'timer', 'program', 'adjust', 'macro', and 'duplicate', etc. These items can be selected by using the channel-up/play button **25**, channel-down/stop button **26**, and then confirmed by using the mute/enter button **24**. Furthermore, each item has its own menu for performing a desired setting.

[0042] **FIG. 6** shows the structure of the processing unit, which includes a microprocessor **30** and a memory unit **31** connected to the microprocessor **30**. The microprocessor **30** is further connected to the touch-type screen **11**, infrared transmitted **12**, infrared receiver **13** and basic button set **20**. The memory unit **31** is provided to store various control commands, user-defined data and default remote control codes for different manufacturers'. The circuit diagram of the processing unit is given in FIGS. **7A-7I**, which also includes a low voltage detection circuit **33** and a power circuit **32** for supplying power to the processing unit.

[0043] The processing unit, is able to implement the various functions, including the learning procedure for programming the remote control code for a specific button, present on the touch-type screen **11** and operated by the basic button set **20**.

[0044] There are two kinds of learning procedures available. The first one is referred to as an automatic learning procedure. With reference to **FIG. 5** again, when the 'program' item in the setting menu is selected, the touch-type screen **11** displays a screen as shown in **FIG. 8A**, which has a menu corresponding to the electrical appliances to be controlled. The items in the menu can be touched and selected by the user. Subsequently, a pattern of the basic button set **20** is present and one of the buttons, for example the upper right button, is inverted, as shown in **FIG. 8B**. The upper right button is corresponding to the power on button **21** of the basic button set **20**. Therefore, as shown in **FIG. 9**, an original remote control **40** is placed to have its transmitter facing the infrared receiver **13** of the remote control body **10**. Then, the power on button of the original remote control **40** is pressed to transmit the corresponding remote control code for being received by the infrared receiver **13** and transferred to the processing unit in the remote control body **10**. The received remote control code is thus defined as the transmission code of the power on button **21**. After completing such a learning procedure, an 'OK' message is displayed on the touch-type screen **11**, as shown in **FIG. 10**, and another button to be programmed next is inverted. Similarly, this button and all the other buttons of the basic button set **20** can be programmed by the same learning procedure, which is easy to carry out without the need of using both hands at the same time.

[0045] The flow chart of the above automatic learning procedure is shown in **FIGS. 11A and 11B**, which includes:

[0046] an automatic button assignment step in which the universal remote control automatically assigns a button to be programmed;

[0047] a first determination step for determining whether the assigned button is going to be programmed, and whether a remote control code is entered;

[0048] a calculation step for determining the carrier frequency and cycle of the entered remote control code; an analysis/storage step to analyze the data type and cycle of the remote control code for being compressed and stored; and

[0049] a second determination step for determining whether the transmission of the remote control code is terminated.

[0050] After accomplishing the above steps, the remote control code for a specific button is thus learned. Similarly, other buttons can be programmed by the same learning steps.

[0051] The second kind of learning procedure is referred to as an automatic searching procedure. As described hereinbefore, the memory unit **31** of the processing unit is stored with the remote control codes of various manufacturers. With the automatic searching procedure, this structure provides an automatic searching function to compare the default remote control codes and the remote control codes from the original remote control. That is, the user can select the