

Method for the sorting of program locations

With entertainment electronics devices, for example, video recorders, it is known to program transmitters (stations) which can be received at the location of the receiver into a memory facility in the device in order to be able to address these by depressing a key for the purpose of simple operation of the device or by means of a remote control. Thereby, a program location or program number is allocated to a particular station and its channel number which corresponds which corresponds with a particular frequency. Modern devices exhibit many addressable program locations whereby, the number of the locations can even exceed the number of receivable stations. With such devices it would be possible to allocate all reception channels which can be theoretically received within a large reception area to a program location number each in one programming process. However, only a few of these programmed channels can be received at the reception point. Therefore, for purposes of reviewing, it is useful to sort the receivable channels, for example, according to rising sequence of the program location number. This can occur by individual programming. Also, with a change of reception point the individual programming would have to be carried out again. However, such re-programming mean a great expenditure of time.

It is the object of the invention to render possible by a simple sorting process. A desired allocation of receivable channels to program location numbers, for example, according to rising sequence, from the many pre-programmed channels.

This task is solved by the features given in claim 1. Further advantageous developments of the invention are given in the sub-claims.

In principle, always the reference data (channel numbers) stored in two program locations, which are successively called up, are exchanged with each other through internal control within the device.

Thereby, it is possible in a simple way to allow a desired allocation of the receivable channels. In order to make this sorting process as easy as possible for the operator time processes are chosen though which the

operator is guided. By depressing a program key intended for the exchange for a long period of about 1 to 4 seconds, the corresponding program location (program-NR) is marked internally for the exchange with the stored reference data (channel-NR). The exchange process is triggered when the data allocated to this program key is read into an auxiliary memory. The data read in (program-NR and channel-NR) are displayed. Simultaneously, an internal clock starts which, for example, is contained in a microprocessor or is formed from a clock pulse generator and a counter in order to open a time window for about 5 seconds. Likewise, the time window can be indicated, for example, through flashing of the data which has been displayed for the exchange or by a particular symbol.

Likewise, by depressing a second program location key for a longer period of 1 to 4 seconds within the given time window of 5 seconds, whose reference data (channel-NR) is to be exchanged with that of the first key, this data is also read into an auxiliary memory. Likewise, at the same time a display of the data (program-NR and channel-NR) allocated to this program location occurs. The desired allocation occurs through an interchange of the reference data (channel-NR) of the two called-up program locations by means of a processor which also controls the displays, this process being known as such from computer technology. The resulting interchange can also be presented as a confirmation on the display.

Subsequently, the invention will be better illustrated by means of a figure.

The figure shows a block circuit diagram for the sorting process. A memory arrangement 1 has a main memory 8 which can be designed as a dynamic RAM. Let it be assumed that the individual program locations (PR-NR) are already allocated to the reference data (channel-NR) in the main memory 8. A key on the keyboard 7 is allocated to always one program location (PR-NR). The corresponding reference data (channel-NR) which is stored in the main memory 8 is output by depressing a key and controlled via the line L1. The control occurs in conjunction with the microprocessor 5 via the data line L7. On the one hand, the data can be output via the line L3 to a display 6 and on the other hand, via the line L4 to circuits in the device, which are not shown here, for the purpose of carrying out keyed-in control commands.

According to the invention the program location in question is marked for a data exchange by longer depression of a Key on the keyboard 7 for about 1 to 4 seconds. This marking technique is already known, for example, in programming clocks or also video recorders, and need not be better explained here. If a first program location for a data exchange is chosen in this way, the data for PR-NR and channel-NR is input into the auxiliary memory 2/3 from the main memory 8 via the line L2 and, at the same time, made visible in the display field 6 via the line L3. In addition, a time window of about 5 seconds is opened by the microprocessor 5. If a second key is depressed within the given time window, likewise for a period of 1 to 4 seconds, then the data stored therein (PR-NR) and channel-NR) is also stored in the auxiliary memory 2/3 and made visible in the display field 6. When the data from the first key and the second key are written into the auxiliary memory 2/3, an exchange process occurs controlled by the microprocessor 5. Therefore, the data from the auxiliary memory 2/3, via a line L5, is written into a further auxiliary memory 4 in such a way that the first PR-NR is allocated to the second channel-NR and the second PR-NR to the first channel-NR. Then, via the line L6, this new sorted data is read into the main memory 8, overwriting the reference data (channel-NR) while retaining the PR-NR and also made visible in the display field 6 as a confirmation of the exchange process. The process is concluded with the expiration of the set time window and further exchange processes can be carried out. If a second key is not depressed within the time window then the system reverts to its already existing condition after the expiration of the time.



P a t e n t C l a i m s

1. Method for the sorting of program locations in an entertainment electronics device with which in a memory arrangement (1) reference data (channel-NR) can be input by way of programming for always one program location (PR-NR) addressable by one key from a keyboard (7), which for control purposes, are output by addressing the program location (PR-NR) characterized by the following method steps:

- a) upon addressing of a first program location (PR-NR) by depressing a first key for a longer time (1 to 4 seconds) a counting circuit is activated for the purpose of timing and, within the operation time, data (PR-NR and channel-NR) allocated to the program location (PR-NR) are read into an auxiliary memory (2) from a main memory (8)
- b) likewise, upon subsequent selection of the second program location (PR-NR) by depressing a second key for a longer time (1 to 4 seconds) within a time-window (5 seconds) pre-determined by the counting circuit the data (PR-NR and channel-NR) allocated to this program location (PR-NR) is read from the main memory (8) into a second auxiliary memory (3), which can also be part of the first auxiliary memory (2);
- c) the reference data of the first program location (channel-NR) is allocated to the second program location (PR-NR) and the reference data of the second program location (channel-NR) is allocated to the first program location (PR-NR) by data exchange, and after the conclusion of the exchange process is again stored in the main memory (8) of the memory arrangement (1) while the program location allocated to a key is retained.

2. Method according to claim 1, characterized in that for the purpose of checking (supervision) Addressed program location numbers (PR-NR) with corresponding reference data, (channel-NR) and the sorting process are indicated by display on a display field (6) or on a television screen.



3. Method according to one of the claims 1 or 2, characterized in that the procedure is controlled by a microprocessor (5).

4. Method according to claim 1, characterized in that the data exchange occurs in a further auxiliary memory.