

Description

The invention relates to a method for the actuation, which is controlled at the transmitter end, of a device at the receiver end in a predetermined operating mode by means of characteristic signals which are assigned in an individualized manner to transmitted broadcasts, in accordance with the precharacterizing clause of Claim 1. The invention further relates to a control device at the receiver end for carrying out the method.

Methods and/or control devices of this type are used, for example, to enable the transmitted broadcast which is characterized by the relevant characteristic signal to be recorded correctly. The characteristic signal is transmitted as an item of information in addition to the audio and/or video signal, for instance via a so-called auxiliary carrier, a so-called data line in the video signal or the like.

DE-A1-35 28 467 has disclosed a control device of the type mentioned in the introduction in which data of the characteristic signal of a currently received transmitted broadcast do not need to be manually input, but rather are automatically extracted from the characteristic signal which is transmitted with the transmitted broadcast. A device controlled by the characteristic signal remains in a predetermined operating mode, for example a video recorder in the recording mode, for precisely the length of time that said characteristic signal is still present.

However, if a user does not wish to record a currently received transmitted broadcast, but rather wishes to record the one after that or the next but one or a transmitted broadcast even further in the future, then he finds himself obliged, nevertheless, in the case of the previously disclosed control device, for the purposes of the transmitter-controlled recording operating mode, manually to input the data of the characteristic signal which are required for this individually into the programming section of the video recorder.

The invention is based on the object of providing a method and/or a control device of the type mentioned in the introduction which enable the user to preprogramme, in a simple manner, transmitter-controlled operation for a transmitted broadcast which is received after the current transmitted broadcast, in the case of the device at the receiver end, without the user needing, for this purpose, manually to input individually the data of the characteristic signal assigned to the desired transmitted broadcast which are required for this.

This object is achieved according to the invention by means of the features specified in Claim 1, and by means of the features specified in Claim 8. Developments of the invention emerge from the subclaims.

The method according to the invention and the control device according to the invention afford the advantage that the reading and/or typing errors which frequently occur during the manual input of relatively extensive data are largely avoided. When inputting data for transmitted broadcasts forthcoming in the foreseeable future, the user no longer needs to concern himself firstly with finding the characteristic signal assigned to a desired transmitted broadcast - for example VPS data published in broadcast guides - nor does he then additionally need to key in the said data laboriously in their entirety. He must only specify exactly which transmitted broadcast (after the currently received transmitted broadcast) he is interested in or the number of transmitted broadcasts (after the currently received transmitted broadcast) he is interested in: the programming of corresponding characteristic signal data then occurs automatically.

In the development of the invention according to Claim 2, it is provided that the number to be input can be used automatically to programme that transmitted broadcast which will be received, corresponding to the said number, after the currently received transmitted broadcast. So if the next transmitted broadcast is to be programmed, then it is only necessary to input the number

"1", or if only the next but one transmitted broadcast is to be programmed, then it is only necessary to input the number "2".

5 In the case of the development according to Claim 3, the input number is used, instead, to specify how many transmitted broadcasts are to be automatically programmed, which transmitted broadcasts essentially directly succeeds the currently received transmitted broadcast.

10 Advantageous developments of the invention are described in the subclaims.

Further advantages, features and details of the invention emerge from the following description of an exemplary embodiment with reference to the drawing, in
15 which:

Figure 1 shows a flow diagram of an exemplary embodiment of the method according to the invention, and
Figure 2 shows, in a greatly simplified illustration, a block diagram of an exemplary embodiment of a
20 control device at the receiver end according to the invention.

The flow diagram, illustrated in Figure 1, in accordance with the method according to the invention shows an exemplary embodiment in which the method is
25 applied to a video recorder which is otherwise not illustrated. In accordance with, for example, the Technical Guideline No. 8 R 2 (Edition 2, April 1987) for broadcasting corporations under public law in the Federal Republic of Germany, this video recorder is equipped for
30 the actuation, which is controlled at the receiver end, for the recording mode by means of VPS identifiers.

The user has a choice between three VPS-controlled recording modes VPS I, VPS II and VPS III, whose starting points 10, 20 and 30 respectively, are illustrated diagrammatically.
35

When calling up the VPS I mode, the user is requested at a point 11 to set a first counter ICOUNT1 to a natural number (that is to say not equal to 0), for example to "m", in order in this way to specify that he

desires to record the next m transmitted broadcasts following on from the currently received transmitted broadcast.

5 If the user calls up the VPS II mode, instead, then he is correspondingly requested at a point 21 to set a second counter LCOUNT2 to a natural number, for example to "n", in order in this way to specify that he desires to record the n th transmitted broadcast after the currently received transmitted broadcast.

10 The operation in VPS III mode constitutes a combination of the two other modes; if this mode VPS III is called up, then the user is requested at a point 31 to input the natural numbers m , n for the counters LCOUNT1 and LCOUNT2, respectively, in order in this way to
15 specify that he desires to record m successive transmitted broadcasts starting with the n th transmitted broadcast after the currently received transmitted broadcast.

Irrespective of which of the three modes has been
20 selected, the method is now continued at a point 30 which is symbolically designated by "START/END". At this point, VPS identifiers received at the set frequency are determined and decoded, then (31, "LABEL OK?") there is a check for plausibility in accordance with the VPS stan-
25 dard. If a correct VPS identifier is not identified here ("NO" branch), then there is a jump back to point 30; if appropriate, this takes place repeatedly until, after a predetermined number of jumps, the method is terminated.

Otherwise ("YES" branch) there is a check at
30 point 32 ("LABEL CHANGE") to see whether the VPS identifier has changed since the last time it passed through this point 32. If this is not the case, then there is a jump back to point 30 from here, too, but this time without the additional condition that the method must be
35 terminated after a predetermined number of such jumps: a plausible VPS identifier is after all present and, consequently, these jumps are thoroughly "desired".

However, if the VPS identifier has changed since the last check carried out at point 32, then there now

follows a branch to a point 33 ("VPS II MODE ? "), where there is a check to see whether the method is operating in the VPS II mode (if the VPS III mode has been activated, at this point it is also rated as operation in the VPS II mode).

If this is not the case - that is to say the operation is in the VPS I mode - then, in the next step, at a point 34 the reading of the counter LCOUNT1 is reduced by 1 and subsequently (35) there is a check to see whether it has now reached the value zero. If the answer to this is no, then the video recorder is set to the recording operating mode at a point 40 or - if it is already in this operating mode - left in this mode, and there is a jump back to point 30.

If, instead, it was established at point 35 that the counter LCOUNT1 has reached the value zero, then there is a jump to a point 45 ("RESET VPS I"), where the setting of the video recorder to the VPS I mode is cancelled and, subsequently, the method is ended at a point 50 ("END").

If at a point 33 the question concerning operation in the VPS II mode is answered with yes, then there is a jump here to a point 51, where the reading of the counter LCOUNT2 is reduced by 1 and subsequently (52) there is a check to see whether it has now reached the value zero. If this is not the case, then there is a jump back to point 30 ("START/END").

Otherwise, at a point 53 ("RESET VPS II, SET VPS I"), the setting of the video recorder to the VPS II mode is cancelled and it is set to the VPS I mode. Then (54) it is set to the recording operating mode and, subsequently, there is a jump back to point 30 ("START/END"). The video recorder now operates, for the remainder of the method, in the VPS I mode, as has been described above.

It is to be understood that all of the above-described interrogations, decision steps and the like take place automatically, unless expressly indicated otherwise.

An exemplary embodiment, illustrated in a block diagram in Figure 2, of a receiver-end control device according to the invention is likewise part of a video recorder (not illustrated otherwise) which operates according to the method described with reference to Figure 1.

When one of the VPS modes, VPS I, VPS II or VPS III, is activated, a VPS identifier ("VPS LABEL") fed to a comparator 100 via a line L is checked for plausibility using the criteria specified in the VPS standard. If the VPS identifier corresponds to the standard, then it is transmitted into a memory 120 via a line 105. The VPS identifier, which is identified as being correct for the first time when the comparison operation is started, is simultaneously transmitted into a memory 130 via a line INIT.

The user can set a broadcast counter 137 to the number m of transmitted broadcasts to be recorded, with the aid of a keypad (not illustrated) which is connected to the broadcast counter 137 via a line 138. Similarly, the user can set a wait counter 140, via a line 139, to the number of transmitted broadcasts which are to be ignored before starting the recording operating mode.

A comparator 141 is connected to the memory 120 via a line 142 and to the memory 130 via a line 143, via which lines (142, 143) the respective memory contents (120 and 130, respectively) are fed to the comparator and are continuously compared with one another by it. If the comparator establishes inequality, then it passes, via lines 144a, 144b, a switching voltage to a comparator 150 and to a switch, respectively, and because of this the latter closes a line 152 leading from the memory 120 to the memory 130 and thereby enables the VPS identifier contained in the memory 120 to be transmitted to the memory 130. At the same time, the comparator 150 checks, via a line 155, whether the wait counter 140 is at zero. If this is the case, the broadcast counter 137 receives, via a line 156, the instruction to be decremented by one.

If the broadcast counter 137 is set to a value of

less than zero because of this, then it emits, via a line 170, a switching voltage to a switching device 190, which switches the video recorder to STOP (= recording ended); if the broadcast counter 137 has a value of greater than
5 or equal to zero, then the video recorder is switched to RECORD (= recording active). If the wait counter 140 is not at zero, then it is decremented by one.

Patent Claims

1. Method for the actuation, which is controlled at the transmitter end, of a device at the receiver end in a predetermined operating mode by means of characteristic signals which are assigned in an individualized manner to transmitted broadcasts, the characteristic signal assigned at the transmitter end to a respective transmitted broadcast being transmitted for the entire duration of the transmitted broadcast, characterized in that the device at the receiver end has a control device with means by which a first characteristic signal, which is received upon activation of the control device, and, chronologically succeeding this first characteristic signal, a predetermined number of - compared, in each case successively, with one another and/or with the first characteristic signal - different characteristic signals are counted in and by which data, which are contained in the characteristic signals, of the characteristic signal received upon reaching the predetermined number and/or of the characteristic signal received before that and/or of the first characteristic signal are automatically stored.
2. Method according to Claim 1, characterized in that there is a wait, until the predetermined number has been reached, before the device is set to the predetermined operating mode for the first time since the reception of the first characteristic signal and remains in this mode for as long as the characteristic signal received upon reaching the predetermined number is received.
3. Method according to Claim 1, characterized in that the device is set to the predetermined operating mode for the first time immediately upon the reception of the first characteristic signal and remains in this mode until the predetermined number is reached for as long as the first characteristic signal, the following characteristic signals and the characteristic signal received upon reaching the predetermined number are respectively received.
4. Method according to one of the preceding claims,

characterized in that the characteristic signals are received according to the VPS standard or the RDS standard or the like.

5. Method according to one of the preceding claims, characterized in that the comparison refers to those data contained in the respective characteristic signals which concern critical data, preferably VPS or RDS time or VPS or RDS day and VPS or RDS time.

6. Method according to one of the preceding claims, characterized in that the device is not yet set to the predetermined operating mode during the reception of the first characteristic signal.

7. Method according to one of the preceding claims, characterized in that they [sic] interrupts operation, which is occurring in the predetermined operating mode, of the device at the receiver end if a characteristic signal characterizing a transmitter-end interruption or disturbance is received, and in that they [sic] effects hereafter, upon renewed reception of the characteristic signal received directly before the interruption or disturbance, anew the operation of the device at the receiver end in the predetermined operating mode.

8. Control device for carrying out the method according to one of the preceding claims, characterized in that it has

(a) a memory (120, 130) in which there are automatically stored, starting from the activation of the control device, critical data which are contained in the first characteristic signal, and critical data which are contained in a characteristic signal following the first characteristic signal, and/or critical data which are contained in a characteristic signal following the latter one, and

(b) a comparator (141) which completely or partially compares the data stored according to (a) with one another, and

(c) a counter (137, 140) which counts the number of characteristic signals established as different according to (b) and emits a conclusion signal upon

reaching the predetermined number, and

5 (d) a coincidence device which is activated by the conclusion signal and remains activated for as long as the characteristic signal received upon activation is received, and by which the device is set to the predetermined operating mode for as long as the coincidence device remains activated, and

10 (e) a switching-off device which is activated by the conclusion signal, receives from the coincidence device a signal characterizing the end of the activity of the coincidence device and then switches off the control device.

9. Control device according to Claim 8, characterized in that the coincidence device can also be activated by the characteristic signals received before
15 reaching the predetermined number.

10. Control device according to one of the preceding claims, characterized in that the device at the receiver end is a recording device, in particular an audio or a
20 video recorder (VCR), and the predetermined operating mode is the recording mode.

11. Control device according to one of Claims 1 to 9, characterized in that the device at the receiver end is a broadcast receiver, in particular a radio or television
25 receiver, and the predetermined operating mode is the reproduction mode of the device.

12. Control device according to Claim 10 or 11, characterized in that a switch is provided for the fast initiation of the recording mode (VPS Quick Start
30 switch), in the event of whose actuation the control device is also activated at the same time.

13. Control device according to Claim 12, characterized in that the predetermined number is established by the number of further quickly successive actuations of
35 the switch following shortly after a first actuation of the switch, or by actuating a numeric keypad.

14. Control device according to one of the preceding claims, characterized in that it is possible to input whether the predetermined number refers to the number of

transmitted broadcasts to be allowed to be concluded before the device is set to the predetermined operating mode, or whether it refers to the number of operating sections to be carried out by the device in the predetermined operating mode.

15. Control device according to one of the preceding claims, characterized in that with regard to reaching the predetermined number of characteristic signals, only those characteristic signals are taken into account which concern characteristic signals assigned in an individualized manner to transmitted broadcasts and which preferably do not include the following characteristic signals according to the VPS standard: status characteristic signals, interruption characteristic signals or characteristic signals affected by interference.



(As printed)

Claims

1. Method for controlling the operation of a device on the receiver side in a predetermined operating mode from the station (transmitter) side by means of characteristic signals individually assigned to broadcasts whereby, a particular characteristic signal assigned to a broadcast from the station side is transmitted during the entire duration of the broadcast, characterized in that the device on the receiver side has a control system with means through which a first characteristic signal received upon activating the control system and following, in time, this first characteristic signal, a predetermined number of - compared respectively with each other, successively, and/ or with the first characteristic signal - different characteristic signals are taken into account (counted in) and through which data - contained in the characteristic signal - of the characteristic signal received on reaching the predetermined number and/ or the one received before that and/ or the first characteristic signal is automatically stored.
2. Method according to claim 1, characterized in that the device is switched into the predetermined operating mode for the first time since receiving the first characteristic signal after the predetermined number has been reached and remains therein so long as the characteristic signal received on reaching the predetermined number is received.



3. Method according to claim 1, characterized in that the device is switched into the predetermined operating mode for the first time immediately upon receiving the first characteristic signal and remains therein until the predetermined number is reached so long as the first characteristic signal, the following characteristic signals and the characteristic signal received on attainment of the predetermined number are respectively received.
4. Method according to one of the preceding claims, characterized in that the characteristic signals are received according to the VPS, RDS or similar standards.
5. Method according to one of the preceding claims, characterized in that the comparison refers to such data contained in the respective characteristic signals with which ruling data is affected, preferably VPS or RDS time or VPS or RDS day and VPS or RDS time.
6. Method according to one of the preceding claims, characterized in that the device is not yet switched into the predetermined operating mode during the reception of the first characteristic signal.
7. Method according to one of the preceding claims, characterized in that it (sic) interrupts one of the operations occurring in the device on the receiver side in the predetermined operating mode if a characteristic signal characterizing an interruption or disturbance from the station side is received and that hereafter, it (sic) causes a new operation of the device on the receiver side in the predetermined operational mode upon reception of the renewal of the characteristic signal received directly before the interruption or disturbance.
8. Control system for the execution of the method according to one of the preceding claims, characterized in that it
 - (a) has a memory (120, 130) which, from the activation of the control system on, automatically contains ruling data, which is contained in the first characteristic signal, and ruling data, which is contained in a characteristic signal following the first characteristic signal, and/or ruling data, which is contained in a characteristic signal following the latter one; and
 - (b) has a comparator (141) which completely or partly compares the data stored according to (a) with each other; and
 - (c) has a counter (137, 140) which counts the number of characteristic signals established as different according to (b) and gives a release signal on reaching the predetermined number; and
 - (d) has a coincidence facility which is activated by the release signal and stays active as long as the characteristic signal received upon activation is received, and through which the device is switched into the predetermined operating mode so long as the coincidence facility stays active; and
 - (e) has a cut-off facility, which is activated by the release signal, which receives from the coincidence facility a signal which characterizes the end of the activity of the coincidence facility and then switches off the control system.
9. Control system according to claim 8, characterized in that the coincidence facility can also be activated by the characteristic signal received before reaching the predetermined number.
10. Control system according to one of the preceding claims, characterized in that the device on the receiver side is a recording device, in particular an audio or a video recorder (VCR), and the predetermined operating mode is the recording mode.
11. Control system according to one of the claims 1 through 9, characterized in that the device on the receiver side is a broadcast receiver, in particular a radio or television broadcast receiver, and the predetermined operating mode is the reproduction mode of the device.
12. Control system according to claim 10 or 11, characterized in that as switch is provided for the fast initiation of the recording mode (VPS Quickstart switch) the operation of which also activates the control system.
13. Control system according to claim 12, characterized in that the predetermined number is established by the number of further quick successive following operations of the switch following shortly after a first operation of the switch or through operation of a number keyboard.
14. Control system according to one of the preceding claims, characterized in that input can occur whether



the predetermined number refers to the number of broadcasts to let pass before the device is to be switched into the predetermined operating mode or whether it refers to the number of operating sections to be carried out in the device in the predetermined operating mode.

15. Control system according to one of the preceding claims, characterized in that with regard to reaching the predetermined number of different characteristic signals only such characteristic signals are allowed which concern characteristic signals that are assigned by the transmitter to broadcasts in an individually characterizing way and to which, preferably, the following characteristic signals according to the VPS standard do not belong: status characteristic signals interruption characteristic signals or interference afflicted characteristic signals.

(As printed)

Revendications

1. Procédé pour l'actionnement commandé côté émetteur d'un appareil côté récepteur dans un mode prédéfini au moyen de signaux d'identification affectés aux émissions en les individualisant, le signal d'identification affecté côté émetteur à une émission respective étant transmis pendant toute la durée de l'émission, caractérisé en ce que l'appareil côté récepteur présente un dispositif de commande avec des moyens par lesquels un premier signal d'identification reçu lors de l'activation du dispositif de commande et un nombre prédéfini de différents signaux d'identification - ceux-ci étant différents respectivement de ceux qui se suivent les uns les autres et/ou du premier signal d'identification - étant compté ensuite dans le temps après ce premier signal d'identification dans le temps et par lesquels des données contenues dans les signaux d'identification du signal d'identification reçu lorsque le nombre prédéfini a été atteint et/ou du signal d'identification reçu auparavant et/ou du premier signal d'identification sont mises en mémoire automatiquement.
2. Procédé selon la revendication 1, caractérisé en ce que l'on attend le fait que le nombre prédéfini soit atteint jusqu'à ce que l'appareil soit mis pour la première fois depuis la réception du premier signal d'identification dans le mode prédéfini et y reste tant que le signal d'identification reçu lorsque le nombre prédéfini est atteint est reçu.
3. Procédé selon la revendication 1, caractérisé en ce que pour la première fois depuis la réception du premier signal d'identification l'appareil est mis dans le mode prédéfini et y reste jusqu'à ce que nombre prédéfini soit atteint, tant que le premier signal d'identification, ceux qui suivent et le signal d'identification reçu lorsque le nombre prédéfini est atteint sont respectivement reçus.
4. Procédé selon l'une des revendications précédentes, caractérisé en ce que les signaux d'identification sont reçus respectivement en correspondant à la norme VPS ou à la norme RDS ou équivalent.
5. Procédé selon l'une des revendications précédentes, caractérisé en ce que la comparaison se rapporte à des données contenues dans les signaux d'identification respectifs pour lesquelles des données prédominantes, de préférence l'heure VPS ou RDS ou le jour VPS ou RDS et l'heure VPS ou RDS sont concernées.
6. Procédé selon l'une des revendications précédentes, caractérisé en ce que l'appareil n'est pas encore mis dans le mode prédéfini pendant la réception du premier signal d'identification.
7. Procédé selon l'une des revendications précédentes, caractérisé en ce qu'il interrompt un fonctionnement de l'appareil côté récepteur qui se fait dans le mode prédéfini lorsqu'un signal d'identification qui caractérise une interruption ou une perturbation côté émetteur et qu'il provoque ensuite à nouveau le fonctionnement de l'appareil côté récepteur dans le mode prédéfini, lors de la nouvelle réception du signal d'identification reçu immédiatement avant l'interruption ou la perturbation.
8. Dispositif de commande pour réaliser le procédé selon l'une des revendications précédentes, caractérisé en ce
 - (a) qu'il présente une mémoire (120, 130) dans laquelle, à partir de l'activation du dispositif de commande, des données prédominantes qui sont contenues dans le premier signal d'identification et des données prédominantes qui sont contenues dans un signal d'identification qui suit le premier signal d'identification et/ou des données prédominantes qui sont contenues dans un signal d'identification qui suit



celui-ci sont mémorisées,

(b) un comparateur (14) qui compare les données mémorisées selon (a) entièrement ou partiellement les unes aux autres et

(c) un compteur (137, 140) qui compte le nombre de signaux d'identification constatés différemment selon (b) et à partir duquel, lorsque le nombre prédéfini est atteint, un signal de fin est donné,

(d) un dispositif de coïncidence qui est activé par le signal de fin et qui reste activé aussi longtemps que le signal d'identification reçu lors de l'activation est reçu et par lequel l'appareil est mis dans le mode prédéfini tant que le dispositif de coïncidence reste activé et

(e) un dispositif de coupure, qui est activé par le signal de fin, qui reçoit du dispositif de coïncidence un signal d'identification caractérisant la fin de l'activité du dispositif de coïncidence et qui coupe immédiatement ensuite le dispositif de commande.

9. Dispositif de commande selon la revendication 8, caractérisé en ce que le dispositif de coïncidence peut également être activé par les signaux d'identification reçus avant que le nombre prédéfini soit atteint.
10. Dispositif de commande selon l'une des revendications précédentes, caractérisé en ce que l'appareil côté récepteur est un appareil enregistreur, en particulier un enregistreur son ou un magnétoscope et le mode prédéfini le mode d'enregistrement.
11. Dispositif de commande selon l'une des revendications 1 à 9, caractérisé en ce que l'appareil côté récepteur est un appareil récepteur de radiodiffusion, en particulier un récepteur de radio ou un récepteur de télévision et le mode prédéfini le mode reproduction de l'appareil.
12. Dispositif de commande selon la revendication 10 ou 11, caractérisé en ce qu'un commutateur pour le déclenchement rapide du mode enregistrement est prévu (commutateur de démarrage rapide VPS), le dispositif de commande étant activé en même temps lors de l'actionnement de celui-ci.
13. Dispositif de commande selon la revendication 12, caractérisé en ce que le nombre prédéfini est fixé par le nombre d'autres actionnements du commutateur qui se suivent rapidement les uns les autres qui est réalisé peu après un premier actionnement du commutateur ou qui est fixé par l'actionnement d'un clavier à chiffres.
14. Dispositif de commande selon l'une des revendications précédentes, caractérisé en ce que l'on peut entrer si le nombre prédéfini se rapporte au nombre des émissions que l'on doit attendre jusqu'au réglage de l'appareil sur le mode prédéfini ou s'il se rapporte au nombre des parties d'opérations de l'appareil à exécuter dans le mode prédéfini.
15. Dispositif de commande selon l'une des revendications précédentes, caractérisé en ce qu'en ce qui concerne le fait d'atteindre le nombre prédéfini de signaux d'identification différents on ne tient compte que des signaux d'identification qui concernent les signaux d'identification affectés aux émissions en les individualisant et parmi lesquels, de préférence, on ne compte pas les signaux d'identification suivants selon la norme VPS : signaux d'identification d'état, signaux d'identification d'interruption ou signaux d'identification dotés de perturbations.