

Description

Field of the invention

The invention relates to a unit for remote controlling an appliance belonging to a one of a plurality of categories, having a model number signifying a given model of a given manufacturer, and adapted to carry out a predetermined function upon receipt of a remote control signal having a predetermined format. The remote control unit comprises command select means for generating user-selectable commands, a memory for storing a plurality of command tables each related to a selectable model of the appliance, model selector means for selecting the model to be controlled, readout means for reading out command table data corresponding to the selected model, and transmitter means for transmitting remote control signals having the correct format.

Background of the invention

A remote control unit as referred to hereabove is disclosed in EP-A-0 122 548. This prior art remote control unit controls one appliance belonging to a predetermined category, for example one VCR. The remote control unit is universal in the sense that the appliance being controlled may be one of different models, possibly made by different manufacturers.

At present, home appliances of different categories are available which can be remotely controlled by the user. For example, a television set can be turned on/off or tuned at various channels, and a video cassette recorder can be controlled to play or record. A remote control unit must then be used for each appliance, each unit being adapted to the corresponding manufacturer. This is inconvenient to the user, especially in the case where control of an appliance of one manufacturer (for example a VCR of brand X) requires the ability to control a related appliance of an other manufacturer (for example a TV of brand Y) as well.

Summary of the invention

It is an object of the invention to furnish a user-friendly universal remote control unit for controlling a plurality of appliances, each appliance accommodating both different categories (TV, VCR, etc.) and different manufacturers. The remote control is to be simple to operate, light, reliable and relatively inexpensive.

According to the invention, the remote control unit is characterized in that the unit comprises a category selector for signifying a user-selected one of the plurality of appliance categories. The model selector is hereby individually provided for each selectable appliance category. The memory is adapted to store the plurality of command tables for all selectable appliance categories.

It is achieved hereby that with a single remote control unit the user can easily switch from controlling an appliance of one category to controlling an other appliance of a different category. For each category the remote control signals are transmitted in the format determined by the corresponding model selector.

It is to be noted that a remote control unit for controlling a plurality of appliances is disclosed in IEEE Transactions on Consumer Electronics, Vol. CE-31, No. 1, February 1985, pp. 59-69. This remote control unit, however, has no provisions for transmitting remote control signals in a user-selectable format.

Yet a remote control unit is disclosed in EP-A-0 117 121. This remote control unit generates remote control signals for a first appliance in a first given format and for a second appliance in a second given format. Only the formats are included which are required by a particular consumer.

The model selector is preferably arranged such that for each category the model is directly settable by the user, for example by DIP-switches. Practice has shown that this is an inexpensive, reliable and easy-to-operate means for model selection. In the prior art remote control unit, model selection is carried out in complicated and time-consuming installation procedure in which all applicable commands in all available formats are applied successively to the appliance. The procedure has to be carried out for each of the plurality of appliances. For each command and for each format the user has to confirm or deny whether the appliance responds correctly to the transmitted control signal. The installation procedure is carried out after a command therefor has been given. Care has to be taken that such a command is not inadvertently generated since that would cause the whole procedure to be carried out again. Further, a signal identifying the selected model is necessarily stored internally. This necessitates a non-volatile memory, otherwise the installation procedure is to be carried out again after each battery replacement. In contrast thereto, switching means such as DIP-switches offer user-friendly model selection. The user merely needs to set

each switch in an appropriate position or may request a dealer to do so.

According to the invention, use of the remote control unit can further be facilitated by permanent association of operation commands of one appliance with related operation commands of another. Thus, in a preferred embodiment, user selection of a VCR "play" command will automatically trigger the command switching the associated television set to the empty channel to be used for display, followed by the command setting the VCR to the "play" mode. This concept is referred to as command chaining herein.

In a further preferred embodiment, the user selectable operation commands for some appliance categories also automatically include commands associated with a related category. For example, television volume controls are available upon selection of the VCR categorie.

The present invention, as well as additional objects thereof, will be better understood upon reference to the following description taken in connection with the accompanying drawing.

Brief description of the drawing

Figure 1 is a block diagram of the remote control unit according to the present invention;
Figure 2 is a schematic diagram of the stand-by circuit;
Figure 3 is a flow chart for the microprocessor of Figure 1;
Figure 4 is a schematic diagram illustrating the keyboard mechanism of the present invention; and
Figure 5 is a schematic diagram of an infrared drive circuit.

Description of the preferred embodiments

In the schematic diagram of Figure 1, a microprocessor which is the central control unit for the system is denoted by reference numeral 10. The timing of microprocessor 10 is controlled by crystal time base 12. The basic microprocessor function is to receive data from three user-controlled selecting devices and to energize an infrared transmitting system to transmit signals with a format selected in accordance with this information. The transmitted infrared radiation is then received by the appliance and causes it to operate as desired by the user.

In the preferred embodiment, the microprocessor is Hitachi HD6301 operated in mode 6 with an oscillator frequency of 4 MHz and an instruction cycle time of 1 microsecond. This speed is necessary in order to generate the carrier output frequencies of up to 55 KHz required by some IR control systems.

The first of the user-operated selection devices is a category selector switch 14, by which the user selects the category of the appliance which is to be controlled. Its output is connected to microprocessor 10 through five lines 16. In the example illustrated in Figure 1, the following categories are provided: a television receiver (TV), a video cassette recorder (VCR) a disc player (disc), an audio system (audio), and an auxiliary input (aux) suitable, for example, for controlling a cable converter.

The second selection device is a keyboard 18. As will be described in greater detail with reference to Figure 4, category selector switch 14 is mechanically coupled to an escutcheon slider which moves in conjunction with the movement of the category selection switch to "illuminate" legends indicating specific commands associated with the selected categories in display windows or areas 20. Additional areas indicated by dashed lines and designated by reference numbers 20a display operation commands available for controlling an appliance operationally associated with the appliance of the category selected by selector switch 14. For example, a television receiver is operationally associated with a video cassette recorder when the latter is in the "play" mode.

In the preferred embodiment, keyboard 18 is a 3x11 matrix, addressable by 11 address lines of a bus 22. Bus 22 is constituted by an eight line bus 24 activated by an address latch 26 and a four line bus 28 activated by microprocessor 10. Keyboard output is furnished on a three line bus 29.

Finally, two sets of dip switches, 30A and 30B, allow the user to identify the model number and/or manufacturer of the appliance to be controlled. The switches are addressed by a twelve line bus 30 also connected by busses 24 and 28.

Within each category, a number of appliance models is individually selectable in accordance with the following table which, however, is illustrative only:

Table I

1) TV	up to 64 formats	(6 dipswitches)
2) VCR	up to 8 formats	(3 dipswitches)
3) DISC	up to 4 formats	(2 dipswitches)
4) AUDIO	up to 8 formats	(3 dipswitches)
5) AUX	up to 4 formats	(2 dipswitches)
88 formats		16 dipswitches

Also shown in Figure 1 is an electrically programmable read only memory (EPROM) 32. This memory contains look-up tables indexed by the category selector, the dipswitches, and the particular key pressed on the keyboard. Indexing takes place via addresses on a twelve line address bus 34 similar to bus 22. The data read out from the tables, including a product code and a command code, is then passed to the appropriate IR transmitter routine called a "formatter" also stored in EPROM 32. Each formatter is a device-specific program designed to generate the precise carrier frequency, pulse width, pulse modulation and overall timing format required by the particular device. EPROM 32 is also controlled by an address decoder 36 through a "selector" line and an "output enable" line. The output of EPROM 32 is furnished on an eight line data bus 40 which connects to a bidirectional bus lines 42. Bus 42 interconnects microprocessor 10, address latch 26 and a tri-state buffer 44.

The input to address decoder 36 is a 4 bit address furnished by four lines from microprocessor 10. A latch enable line connects microprocessor 10 to address latch 26. Address decoder 36 also has an output connected via an "enable" line to buffer 44.

The data output lines from keyboard 18 are also connected to the inputs of a stand-by controller 46. A first and a second output of stand-by controller 46 is connected to a reset and stand-by input of microprocessor 10, respectively.

Finally, an output port 38 of microprocessor 10 is connected to IR driver circuit 40 which in turn drives infrared light emitting diodes (LED's) 42.

Address latch 26, when enabled, latches the address applied to it via bus 42 so that the latter may be used to transmit data to microprocessor 10.

Stand-by circuit 46 is shown in greater detail in Figure 2, wherein corresponding elements have the same reference numerals as in Figure 1. Specifically, it consists of an OR gate 510 having a three line input from bus 29. A timing circuit consisting of a resistor 512 and a capacitor 514 is connected to the output of OR gate 510. The common point of resistor 512 and capacitor 514 is connected to one input of an OR gate 516 whose second input is connected to a latch output of microprocessor 10. The output of OR gate 516 is connected to the reset and stand-by terminals of microprocessor 10.

Operation of the above-described equipment will now be described with reference to the flow chart of Figures 3A-D.

Referring to Figure 3A, upon inserion of the battery, microprocessor initialization takes place. A random access memory (RAM) in the microprocessor, the input-output ports, and a flag in the internal memory of the microprocessor are set to initial conditions. The microprocessor then enters the sleep mode. In this mode, stand-by circuit 46 grounds the reset and stand-by pins of the microprocessor. A circuit internal to the microprocessor shuts down all internal circuitry except for memory and the circuitry monitoring the "stand-by" and "reset" lines. This state continues until a key of keyboard 18 is pressed.

Upon pressing of a key, OR circuit 510 receives an input, causing it to generate an output, charging capacitor 514. This, in turn, causes an output to appear at OR gate 516, energizing the "reset" and "stand-by" circuits in the microprocessor, and also energizing the output enable of latch 26. Monitoring of the stand-by and reset lines as well as the previously set flag causes the microprocessor to energize the latch for stand-by circuit 46 and to enable address latch 26.

The microprocessor then executes the keyboard scan. Specifically, the eleven rows of keyboard 18 and interrogated by bus 22 in a predetermined sequence. If a key on keyboard 18 is pressed, one of these rows is connected to its column, causing one of the lines of bus 29 to be at a high level at a specific step in the program. Buffer 44 is enabled by address decoder 36 to allow the information from keyboard 18 to be passed onto microprocessor 10.

The microprocessor then enters the subroutine shown in Figure 3B to determine which key (or keys) was pressed. Specifically, it is first determined whether the number of keys pressed is equal to 1 or greater than 1. If the number is greater than 1, it is determined whether the number is equal to 2. If the number is not equal to 2, i.e. if more than 2 keys have been pressed an unacceptable condition prevails and the program is aborted, a new scanning of the keyboard being initiated.

If two keys had been pressed, it is determined whether these are the record and play keys. It must be remembered that to activate the VCR to "record" both of these keys must be pressed. The category switch is then interrogated. This is an internal interrogation, since the outputs of switch 14 have been applied to the microprocessor. If the category is not either VCR or audio tape, the program is again aborted with resumption of keyboard scan. However, if the category switch does read either VCR or audio tape, the keyboard command is interpreted as a record command. Referring again to Figure 3A, the keyboard position number of the pressed key is then stored in an internal random access memory (RAM) in the microprocessor. On the other hand, if the number of keys pressed is equal to 1 and the so-pressed key is the record key, the program aborts as mentioned above. If it is not the record key and not the play key, the main program is resumed and the keyboard position number of the pressed key is stored in internal RAM. If it is the play key, the category switch is scanned. If the category is a category other than the VCR, the keyboard position number is again stored.

If, however, the category is VCR, the command chain illustrated in figure 3C commences. First, the category number in the RAM is set to the number signifying "television". The dipswitches are then scanned in the same manner as described previously with respect to the keyboard scan. Data readout on bus 31 is applied to the microprocessor through bus 42, latch 26 again again carrying out its latching function. The dipswitch data is stored in RAM.

At this point, the microprocessor sends signals to the IR driver 40 causing it to send a command to the TV to switch it to the output channel of the VCR, e.g. channel 3. First, the key data in the RAM is set to zero. The "send" function is then executed. This is described in subroutine A, Figure 3D, which will be discussed in detail below.

After the command "0" has been sent, the key data in the RAM is set to "3". The send function is again executed. At the end of this particular send operation, the television has been switched to channel 3.

At this point, the category number in RAM is set to the VCR value. The key data is set to "play".

The system then returns to the main program illustrated in Figure 3A. The category switch is scanned and the result of the scan is stored in internal RAM. The scanning is controlled by a program in internal ROM. After the category switch data has been entered into RAM, the dipswitches are scanned, also under control of a program in internal ROM. The result of the scan is stored in the RAM of the microprocessor.

At this point, the microprocessor RAM contains data specifying the manufacture and model number of the device being controlled, the type of device it is and the key data, i.e. the data indicating the desired command.

The program then goes into the "send" mode illustrated in Figure 3D.

The program enters a "decode" routine located in internal ROM. The stored category switch data, key data and dipswitch data is used to calculate the address of the command table in EPROM 32. The command table stores the following data for each associated key:

1. the command word bit pattern;
2. the formatter starting address;
3. the associated category type; and
4. a repeating or nonrepeating flag, i.e. a flag signifying whether or not the command is to continue to be transmitted until the key is no longer depressed.

The category type found in the table is then checked against the currently selected category. A test is carried out whether they match. If not, the category data in RAM is replaced with the category data found in the table. For example, if the selected category is either disc or VCR, a TV command such as "volume up" will cause the "television" category to be stored in RAM.

If the two categories do match, the program jumps to the formatter starting address. The IR code is sent to the IR driver, i.e., the microprocessor acts in response to formatter instruction stored in EPROM to send the proper carrier frequency, type of code, timing, etc. to the IR driver. The keyboard is then scanned again. If the key is no longer pressed, the stand-by circuit is unlatched. If the same key is still pressed, a test is carried out as to whether the repeat flag is on. If the repeat flag is not on, no code is output; however, keyboard scan continues until the key is released. If the repeat flag is not on, the program loops back to the formatter starting address so that the IR code continues to be sent to the IR driver.

It should be noted that after the stand-by circuit is unlatched by microprocessor 10, the timing circuit consisting of resistor 512 and capacitor 514 of Figure 2 continues to hold the output of OR gate 516 high for

a relatively short time since only a high impedance discharge path is available for the capacitor. Alternatively, latching and unlatching of the microprocessor control could be dispensed with, a timing circuit being provided which maintains the microprocessor in stand-by for a time period adequate to assure that the command has been carried out. For greater reliability, and because of the presence of chain commands, i.e. an automatic command sequence initiated for depression of a single button, a positive latch and unlatch by the microprocessor is preferable.

Referring now to Figure 4, the construction of the keyboard-category selector switch combination will be described in detail. An opaque keyboard cover 410 has translucent areas 412, 414 formed in the shape of letters or labels. One or more label is associated with each button or key. In the illustration, the labels associated with a button 416 are "on" and "off". In operation, the keyboard cover is positioned parallel to and in close proximity of the sliding escutcheon 418. The slider mechanism which moves the escutcheon relative to the opaque top layer of the keyboard is operated by a thumb wheel 420. The sliding escutcheon carries a first and second contrasting color, i.e. contrasting to the color of the top layer, and, inbetween the two contrasting colors, a color which is the same as that of the top layer. In the position illustrated, the first contrasting color is underneath the "off" label. This label would thus be "lit".

Thumbwheel mechanism 220 is activated by the user to select the category of appliance to be controlled, i.e. thumbwheel 220 controls the position of category selector switch 14 of Figure 1. The same button can thus be used for different commands, depending upon the selected category. For example, pressing a given button may turn a VCR off, or turn a television set on.

The IR driver circuit illustrated in Figure 5 is a standard driver circuit illustrated her for completeness only. It consists of a first amplifier stage including a transistor 510 having an emitter resistor 520 and a collector resistor 530. Three diodes 540 are connected in parallel with resistor 530. The collector of transistor 510 is connected to the base of a second transistor 550 connected as an emitter follower. Two light emitting diodes 560 are connected in the emitter circuit of transistor 550. The light emitting diodes emit infrared radiation under control of signals applied to the base circuit of transistor 510 by microprocessor 10.

Although the invention has been illustrated in a particular preferred embodiment, it is not intended to be limited thereto. Many variations in operation and construction will readily occur to one skilled in the art and are intended to be encompassed in the invention as set forth in the following claims.

Appendix to Figures 3A, 3B, 3C, 3D

<u>Reference number</u>	<u>Inscription</u>
300	insert battery
301	µp initializes set flag
302	enter sleep mode
303	standby circuit checks for any keyboard key pressed
304	any key pressed
305	standby circuit activates "reset" and "standby" lines on µp. µp reinitializes
306	µp executes keyboard scan program in internal ROM
307	determine which key(s) was pressed
308	store keyboard position number of key pressed in internal RAM
309	read category switch store result in internal RAM
310	read dipswitch store result in internal RAM
311	multi key patch (Figure 3B)
312	# of keys pressed
313	# = 2?
314	are they record + play?
315	read category switch
316	category = VCR or audio tape?
317	set keyboard data = record
318	is it record key?
319	is it play?
320	read category switch
321	category = VCR?
322	set category number in RAM = TV value
323	read dipswitch + store in RAM
324	set key data = "0"
325	execute "send" functions
326	set key data = "3"
327	execute "send" functions
328	set category number in RAM = VCR value

329 set key data = "play"
 330 using stored category switch data and dipswitch
 5 data calculate address of command table in
 external EPROM
 331 using command table address and key position
 number get formatter address and data out of
 10 command table
 332 check currently selected category against
 category type found in table
 333 do they match?
 15 334 replace category data in RAM with category data
 found in table
 20 335 jump to formatter starting address. Execute
 instructions to send IR code to IR driver
 scan keyboard
 337 same key still pressed?
 338 unlatch standby circuit
 25 339 repeat flag on?

Claims

1. Unit for remote controlling an appliance belonging to a one of a plurality of categories, having a model number signifying a given model of a given manufacturer, and adapted to carry out a predetermined function upon receipt of a remote control signal having a predetermined format, the unit comprising:
 - 35 - command select means (18) for generating user-selectable commands in response to user's selection thereof;
 - model selector means (30a, 30b) for generating a model select signal signifying the model of the appliance category to be controlled;
 - 40 - a memory (32) for storing a plurality of command tables each related to a selectable model of the appliance category to be controlled;
 - readout means (10) for reading out command table data in said memory under control of the user-selected command and the model select signal;
 - transmitter means (40) to which said read-out command data are applied, for transmitting in response thereto remote control signals having the correct format to control the appliance,
 - 45 which unit is characterized in that:
 - the memory (32) is adapted to store the plurality of command tables for a plurality of appliance categories;
 - the unit further comprises category selector means (14) for generating a category select signal signifying a user-selected one of the plurality of appliance categories;
 - 50 - the read-out means (10) is adapted to read out the command table data under further control of the category select signal;
 - the model selector means (30a, 30b) are individually provided for each selectable appliance category.
- 55 2. Remote control unit according to Claim 1, characterized in that the model selector means are arranged as switching means which are directly settable by the user.



329 set key data = "play"
 330 using stored category switch data and dipswitch
 5 data calculate address of command table in
 external EPROM
 331 using command table address and key position
 10 number get formatter address and data out of
 command table
 332 check currently selected category against
 category type found in table
 333 do they match?
 15 334 replace category data in RAM with category data
 found in table
 335 jump to formatter starting address. Execute
 20 instructions to send IR code to IR driver
 336 scan keyboard
 337 same key still pressed?
 338 unlatch standby circuit
 25 339 repeat flag on?

Claims

1. Unit for remote controlling an appliance belonging to a one of a plurality of categories, having a model number signifying a given model of a given manufacturer, and adapted to carry out a predetermined function upon receipt of a remote control signal having a predetermined format, the unit comprising:
- command select means (18) for generating user-selectable commands in response to user's selection thereof;
 - model selector means (30a, 30b) for generating a model select signal signifying the model of the appliance category to be controlled;
 - a memory (32) for storing a plurality of command tables each related to a selectable model of the appliance category to be controlled;
 - readout means (10) for reading out command table data in said memory under control of the user-selected command and the model select signal;
 - transmitter means (40) to which said read-out command data are applied, for transmitting in response thereto remote control signals having the correct format to control the appliance,
- which unit is characterized in that:
- the memory (32) is adapted to store the plurality of command tables for a plurality of appliance categories;
 - the unit further comprises category selector means (14) for generating a category select signal signifying a user-selected one of the plurality of appliance categories;
 - the read-out means (10) is adapted to read out the command table data under further control of the category select signal;
 - the model selector means (30a, 30b) are individually provided for each selectable appliance category.
2. Remote control unit according to Claim 1, characterized in that the model selector means are arranged as switching means which are directly settable by the user.



3. Remote control unit according to Claim 1, characterized in that the command select means comprises display elements and display control means for displaying commands thereon in response to the selected category.
- 5 4. Remote control unit according to Claim 3 wherein the command select means is a keyboard having a plurality of keys, characterized in that:
 - with at least one of the keys a first and a second command is associated, the command corresponding to a first and second one of said categories respectively,
 - a display element is associated with said at least one key for displaying a first or second symbol respectively;
 - 10 - the display control means is adapted to make the first or second symbol legible in response to the selected category.
- 15 5. Remote control unit according to Claim 3, characterized in that the display control means is mechanically coupled to the category selector means.
- 20 6. Remote control unit according to Claim 1, characterized in that with at least one command belonging to a selected appliance category at least one additional command belonging to a predetermined other appliance category is associated in a predetermined time relationship.
7. Remote control unit according to Claim 6, characterized in that the predetermined command is a play command for a VCR category and the additional command is a channel switch command for a TV category.
- 25 8. Remote control unit according to Claim 1, characterized in that the command select means further comprises commands associated with an additional appliance category which is operationally associated with the selected appliance category.
- 30 9. Remote control unit according to Claim 8, characterized in that the selected appliance category is the VCR category and said additional category is the TV category, whereby user control of a television set can take place when the unit is set for controlling a VCR.

Patentansprüche

- 35 1. Einrichtung zur Fernsteuerung eines Geräts, das zu einer bestimmten Kategorie einer Vielzahl von Kategorien gehört und eine Modellnummer hat, die ein bestimmtes Modell eines bestimmten Herstellers bezeichnet, und eine vorbestimmte Funktion ausführt bei Empfang eines Fernsteuerungssignals eines vorbestimmten Formats, wobei diese Einrichtung die nachfolgenden Elemente aufweist:
 - ein Befehlselektionsmittel (18) zum Erzeugen vom Benutzer selektierbarer Befehle in Antwort auf deren Selektion durch den Benutzer;
 - 40 - Modellselektionsmittel (30a, 30b) zum Erzeugen eines das Modell der zu steuernden Gerätekategorie bezeichnenden Modellselektionssignals;
 - einen Speicher (32) zum Speichern einer Vielzahl von Befehlstabellen, die je zu einem selektierbaren Modell der zu steuernden Gerätekategorie gehören;
 - 45 - ein Auslesemittel (10) zum Auslesen von Befehlstabellendaten in dem genannten Speicher unter Ansteuerung des vom Benutzer selektierten Befehls und des Modellselektionssignals;
 - ein Übertragungsmittel (40), dem die genannten ausgelesenen Befehlsdaten zugeführt werden, wobei in Antwort darauf Fernsteuerungssignale mit dem entsprechenden Format zur Steuerung des Gerätes übertragen werden,
 - 50 dadurch gekennzeichnet, daß
 - der Speicher (32) die Vielzahl von Befehlstabellen für eine Vielzahl von Gerätekategorien speichern kann;
 - die Einrichtung weiterhin ein Kategorieselektionsmittel (14) aufweist zum Erzeugen eines Kategorieselektionssignals, das eine vom Benutzer selektierte Gerätekategorie einer Vielzahl von Gerätekategorien bezeichnet;
 - 55 - das Auslesemittel (10) unter weiterer Ansteuerung des Kategorieselektionssignals die Befehlstabellendaten auslesen kann;
 - die Modellselektionsmittel (30a, 30b) für jede selektierbare Gerätekategorie einzeln vorgesehen



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2. Fernsteuerungseinrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Modellselektionsmittel als Schaltmittel vorgesehen sind, die vom Benutzer selbst eingestellt werden können.
3. Fernsteuerungseinrichtung nach Anspruch 1, dadurch gekennzeichnet, daß das Befehlselektionsmittel Wiedergabeelemente und Wiedergabersteuermittel aufweist zum Wiedergeben von Befehlen darin in Antwort auf die selektierte Kategorie.
4. Fernsteuerungseinrichtung nach Anspruch 3, wobei das Befehlselektionsmittel ein Tastenfeld mit einer Vielzahl von Tasten ist, dadurch gekennzeichnet, daß
 - mindestens einer der Tasten ein erster und ein zweiter Befehl zugeordnet ist, wobei der Befehl einer ersten bzw. einer zweiten Kategorie der genannten Kategorien zugeordnet ist,
 - der genannten mindestens einen Taste ein Wiedergabeelement zugeordnet ist zum Wiedergeben eines ersten bzw. zweiten Symbols,
 - das Wiedergabesteuermittel in Antwort auf die selektierte Kategorie das erste oder zweite Symbol leserlich macht.
5. Fernsteuerungseinrichtung nach Anspruch 3, dadurch gekennzeichnet, daß das Wiedergabesteuermittel mit dem Kategorielektionsmittel mechanisch gekuppelt ist.
6. Fernsteuerungseinrichtung nach Anspruch 1, dadurch gekennzeichnet, daß mindestens einem zu einer selektierten Gerätekategorie gehörenden Befehl mindestens ein weiterer, zu einer vorbestimmten anderen Gerätekategorie gehörender Befehl in einer vorbestimmten Zeitbeziehung zugeordnet ist.
7. Fernsteuerungseinrichtung nach Anspruch 6, dadurch gekennzeichnet, daß der vorbestimmte Befehl ein "Spiel"-Befehl für eine VCR-Kategorie und der weitere Befehl ein Kanalschaltbefehl für eine Fernseh-Kategorie ist.
8. Fernsteuerungseinrichtung nach Anspruch 1, dadurch gekennzeichnet, daß das Befehlselektionsmittel weiterhin einer weiteren Gerätekategorie zugeordnete Befehle aufweist, wobei diese Kategorie betriebsmäßig der selektierten Gerätekategorie zugeordnet ist.
9. Fernsteuerungseinrichtung nach Anspruch 8, dadurch gekennzeichnet, daß die selektierte Gerätekategorie die VCR-Kategorie und die weitere Kategorie die Fernseh-Kategorie ist, wobei die Steuerung eines Fernsehgeräts durch den Benutzer stattfinden kann, wenn die Einrichtung in dem Stand für VCR-Steuerung steht.

Revendications

1. Dispositif pour télécommander un appareil appartenant à l'une de plusieurs catégories, portant un numéro de modèle désignant un modèle donné d'un fabricant donné et propre à exécuter une fonction prédéterminée à la réception d'un signal de télécommande présentant un format prédéterminé, le dispositif comprenant :
 - un moyen sélecteur d'ordres (18) pour générer des ordres pouvant être sélectionnés par l'utilisateur, en réponse à une sélection de l'utilisateur;
 - un moyen sélecteur de modèles (30a, 30b) pour générer un signal de sélection de modèles indiquant le modèle de la catégorie d'appareils à commander;
 - une mémoire (32) pour stocker une pluralité de tables d'ordres se rapportant chacune à un modèle pouvant être sélectionné de la catégorie d'appareils à commander;
 - un moyen de lecture (10) pour extraire des données de tables d'ordres dans la mémoire sous la commande de l'ordre sélectionné par l'utilisateur et du signal de sélection de modèle;
 - un moyen d'émission (40) auquel les données d'ordres de lecture sont appliquées pour émettre en réponse à ces données des signaux de télécommande présentant le format correct pour commander l'appareil;
 ce dispositif étant caractérisé en ce que :
 - la mémoire (32) est à même de stocker la pluralité de tables d'ordres pour une pluralité de catégories d'appareils;



- 5
- le dispositif comprend, en outre, un moyen sélecteur de catégories (14) pour générer un signal de sélection de catégories désignant une catégorie d'appareils sélectionnée par l'utilisateur de la pluralité de catégories d'appareils;
 - le moyen de lecture (10) est à même d'extraire les données de tables d'ordres sous la commande ultérieure du signal de sélection de catégories;
 - les moyens sélecteurs de modèles (30a, 30b) sont prévus individuellement pour chaque catégorie d'appareils pouvant être sélectionnée.
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2. Dispositif de télécommande suivant la revendication 1, caractérisé en ce que les moyens sélecteurs de modèles ont la forme de moyens de commutation qui peuvent être réglés directement par l'utilisateur.
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3. Dispositif de télécommande suivant la revendication 1, caractérisé en ce que le moyen de sélection d'ordres comprend des éléments d'affichage et des moyens de commande d'affichage pour afficher les ordres sur ces éléments en réponse à la catégorie sélectionnée.
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4. Dispositif de télécommande suivant la revendication 3, dans lequel le moyen de sélection d'ordres est un clavier comportant une pluralité de touches, caractérisé en ce que :
- à au moins une des touches est associé un premier et un second ordre, l'ordre correspondant respectivement à une première et une seconde catégorie;
 - un élément d'affichage est associé à ladite au moins une touche pour afficher respectivement un premier ou un second symbole;
 - le moyen de commande d'affichage est à même de rendre le premier ou le second symbole lisible en réponse à la catégorie sélectionnée.
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5. Dispositif de télécommande suivant la revendication 3, caractérisé en ce que le moyen de commande d'affichage est couplé mécaniquement au moyen sélecteur de catégories.
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6. Dispositif de télécommande suivant la revendication 1, caractérisé en ce qu'à au moins un ordre appartenant à une catégorie d'appareils sélectionnée, est associé, dans une relation de temps prédéterminée, au moins un ordre supplémentaire appartenant à une autre catégorie d'appareils prédéterminée.
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7. Dispositif de télécommande suivant la revendication 6, caractérisé en ce que l'ordre prédéterminé est un ordre de lecture pour une catégorie VCR et l'ordre supplémentaire est un ordre de commutation de canal pour une catégorie TV.
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8. Dispositif de télécommande suivant la revendication 1, caractérisé en ce que le moyen de sélection d'ordres comprend, en outre, des ordres associés à une catégorie d'appareils supplémentaire qui est activement associée à la catégorie d'appareils sélectionnée.
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9. Dispositif de télécommande suivant la revendication 8, caractérisé en ce que la catégorie d'appareils sélectionnée est la catégorie VCR et la catégorie supplémentaire est la catégorie TV, la commande par l'utilisateur d'un appareil de télévision pouvant s'effectuer lorsque le dispositif est réglé pour commander un VCR.
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