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(54) **FIRE ALARM RECEIVER AND FIRE ALARM SYSTEM**

FEUERALARMEMPFÄNGER UND FEUERALARMSYSTEM.

RECEPTEUR D'ALARME INCENDIE ET SYSTEME D'ALARME INCENDIE

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Description

TECHNICAL FIELD

[0001] The present invention relates to a fire protection receiver and a fire protection receiver system including the fire protection receiver, which provide the functions of a central processing unit mainly controlling terminals and displaying information, conditions, etc., in fire protection equipment primarily composed of a fire detector, a controlled apparatus composed of, for example, a smoke controller, the actuation thereof being interlocked with the fire detector, and a transmitter connected to the foregoing component units.

BACKGROUND ART

[0002] FIG. 8 is a conceptual view showing an example of a fire protection receiver in conventional fire protection equipment.

[0003] The example of the conventional equipment has a display unit 30 showing fire information, operation statuses, etc., a control unit 40 composed of switches and the like, and a printer 50 on the front surface of a receiver R. Provided inside the receiver R are mainly a CPU (not shown), which controls the receiver R, and a ROM (read-only memory) 70, wherein preset data is stored.

[0004] When installing fire protection equipment at a site such as in a building, data showing the correspondence between the addresses of terminals, including fire detectors and smoke controllers, and the places, where the terminals are installed (e.g., conference rooms, office rooms, and an entrance hall), is stored beforehand in the ROM 70 of the receiver R according to the situations of the site, the data showing such correspondence being used for display at the time of regular inspection or in case a fire alarm is given. Further, interlock data showing the interlock relationship between fire detectors and controlled equipment (data showing which controlled equipment should be actuated when a certain detector is actuated) and display data to be indicated on the display unit of the receiver R are also stored in advance in the ROM 70 when fire protection equipment is installed at a site.

[0005] If, however, a partition change or the like takes place after installing the fire protection equipment at a building or the like, and if, for example, an office room is changed to a guest room, then the correspondence between the fire detectors and the installation places changes. This requires updating the set data, which has been stored in the ROM 70.

[0006] To update the set data stored in the ROM 70, the ROM 70, which is an IC package having an IC chip sealed with resin, for example, is removed from a ROM socket, which is soldered to a substrate, then a new ROM 70a (a ROM storing updated set data) is attached to the socket. This completes the updating of the set data.

[0007] A person qualified to replace the ROM with the new ROM 70a, however, is limited to one who is familiar with the ROM to a certain extent. Moreover, even for a person, who has certain knowledge about the ROM, replacing the ROM requires troublesome work partly due to the need of carefulness to avoid bending the pins of the ROM 70a. Further, careless handling of the ROM 70a may destroy the stored data because of static electricity or external forces such as shocks may damage the pins of the ROM 70a during transportation. The document JP-A-3,55693 discloses a microcomputer based fire alarm equipment according to the preamble of claim 1.

[0008] An object of the present invention is to provide a fire protection receiver and a fire protection receiver system for fire protection equipment, which enable a person, who is not familiar with the ROM, i.e., an electronic circuit, to update set data such as interlock data securely and which permit easy updating work.

DISCLOSURE OF THE INVENITON

[0009] The invention is defined by the appended claims

[0010] A fire protection receiver in accordance with the present invention is provided with an electrically erasable programmable read-only memory (EEPROM) as an erasable, nonvolatile memory, which stores at least one type of set data among such data as the interlock data showing the interlock relationship between fire detectors and controlled equipment, the data on correspondence between terminal addresses and the places where the terminals are installed, and the display data to be shown on the display unit of the fire protection receiver, and the receiver function data showing the functions of the fire protection receiver; a reading means, which reads the set data for updating from a memory pack comprised of an IC card or the like, wherein the data for updating is stored when the power of the fire protection receiver is turned ON or a similar operation is performed; and a first writing means, which writes the read set data for updating to the EEPROM.

[0011] According to the present invention, when the power of the fire protection receiver is turned ON or a similar operation is performed, the set data for updating is read from the memory pack or the like, where the set data for updating for the interlock data, correspondence data, display data, receiver function data, etc. are stored, and the read data is written to the EEPROM; therefore, a person, who does not know about the ROM shaped like an IC package, is able to update the set data such as the interlock data securely and easily. Memory packs or the like composed of IC cards or the like have no pins sticking out and some of them have protective circuits, eliminating the danger of the stored data being damaged.

[0012] A fire protection receiver according to the

present invention is further provided with a second writing means, which transfers the set data currently stored in the EEPROM, which is an erasable nonvolatile memory, to the memory pack and writes it to the memory pack as a preparatory step for updating the set data, so that the set data currently recorded in the EEPROM is transferred to and stored in the memory pack, and the memory pack is carried into a service center or the like, where set data for updating is prepared after discussing the current set data. This allows the set data to be edited at the service center, referring to the old set data recorded in the EEPROM, making it possible to update the set data in accordance with actual circumstances.

[0013] The present invention further includes a fire protection receiver system composed of the aforesaid fire protection receiver and the aforesaid memory pack, which is disconnectably connected thereto.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014]

FIG. 1 is a block diagram showing a fire protection receiver system according to a first embodiment of the present invention;
FIG. 2 is a flowchart showing part of the operation of the invention;
FIG. 3 is a flowchart showing another operation of the invention;
FIG. 4 is a block diagram showing a fire protection receiver system according to the present invention;
FIG. 5 is a flowchart showing the operation of the invention;
FIG. 6 is a flowchart specifically showing the writing operation given in a step S4 of FIG. 5;
FIG. 7 is a flowchart specifically showing the writing operation shown in a step S6 of FIG. 5; and
FIG. 8 is a conceptual view showing an example of a fire protection receiver in conventional fire protection equipment.

BEST MODE FOR CARRYING OUT THE INVENTION

First Embodiment:

[0015] FIG. 1 is the block diagram showing aspects of the fire protection receiver system according to the present invention.

[0016] In this art, a receiver R1 has a CPU (microcomputer) 11, which controls the entire receiver R1 and the terminals (not shown) of controlled equipment, etc. connected thereto, a ROM 21, wherein a program for controlling the receiver R1 and the terminals connected thereto is stored, a random access memory (RAM) 22, which is used as a working area, a display unit 31, which displays a fire district, an automatic test location, etc. and which includes LEDs, liquid crystal, etc., an interface 32 for the display unit 31, a control unit 41 composed mainly of switches, an interface 42 for the control unit 41, a printer 51, an interface 52 for the printer 51, and an interface 61 for terminals, including fire detectors, transmitters, and smoke controllers. Stored in the ROM 21 is a program related to the flowchart shown in FIG. 2 or FIG. 3.

[0017] The receiver R1 further has an EEPROM 71 for storing set data and a connector 81 for disconnectably connecting an IC card 82 to data buses (shown by solid lines) and address buses (shown by dashed lines) in the receiver R1. The IC card 82 is inserted into an inserting port 80, which is provided in a front plate of the receiver R1, the inserting port being normally plugged with a cover (not shown). The inserting port 80, however, may not be provided with a cover.

[0018] The EEPROM 71 is a nonvolatile memory, which stores various types of set data such as the interlock data showing the interlock relationship between the fire detectors and controlled equipment, the data on the correspondence between terminal addresses and the locations, where the terminals are installed, display data shown on the display unit 31 of the fire protection receiver R1, and receiver function data showing the functions of the fire protection receiver R1, and it stores at least one type of set data composed of such data as the interlock data, correspondence data, display data, and receiver function data.

[0019] The interlock data showing the interlock relationship between the fire detectors and controlled equipment works, for example, in the following manner; when smoke controllers are considered as the controlled equipment, if the first fire detector through the third fire detector detect a fire, then the first smoke controller is interlocked, or if the fourth fire detector through the sixth fire detector detect a fire, then the second smoker controller is interlocked. The display data shown on the display unit 31 of the fire protection receiver R1 includes the data indicating the fact that a fire has broken out and the location where the fire has broken out, which is typically represented by a message "The conference room on the first floor is on fire," and the data showing a menu giving choices of testing, maintenance, interlock cutoff, data list, guide list, etc. The receiver function data showing the functions of the fire protection receiver R1 includes the data indicating the functions such as fire alarm retransmission.

[0020] The CPU 11 and the ROM 21 are examples of the reading means for reading data from the IC card 82 when the power of the fire protection receiver is turned ON. The IC card 82 is an example of a nonvolatile memory pack, wherein at least one set datum among the aforesaid interlock data, correspondence data, display data, and receiver function data is stored. The CPU 11 and the ROM 21 are also examples of the first writing means for writing the data, which has been read from the IC card 82, to the EEPROM 71.

[0021] The operation of the art according to aspects of the invention described above will now be described.

[0022] FIG. 2 is the flowchart showing the operation of the above art.

[0023] First, the power switch of the receiver R1 is turned ON (step S1). At this time, if the IC card 82 is not connected to the connector 81 (step S2), then initialization is carried out in accordance with the then contents stored in the EEPROM 71 (step S4). Fire monitoring is performed, display is given on the display unit 31 according to the set data stored in the EEPROM 71, and terminals are controlled (step S5).

[0024] If a change of partition or the like is made at a site, wherein fire protection equipment is installed, then it is necessary to update the set data according to the new partition or the like. For this purpose, the set data for updating is written to the IC card 82 at a service center or a factory or the like. The IC card 82 is sent to the site. At the power of the receiver R1 is turned OFF, the IC card 82 is attached to the connector 81 of the receiver R1, and the power switch is turned back ON to actuate the power.

[0025] In this case, since the power switch of the receiver R1 is turned ON (step S1) and the IC card 82 has been connected to the connector 81 (step S2), the set data for updating stored in the IC card 82 is read, and the read set data for updating is transferred to and stored in the EEPROM 71 (step S3). Initialization is performed in accordance with the new contents stored in the EEPROM 71 (step S4), fire monitoring is carried out, display is given on the display unit 31 according to the new set data stored in the EEPROM 71, and the terminals are controlled (step S5).

[0026] In the above described aspects of the invention, updating the set data such as the interlock data, correspondence data, display data, and receiver function data can be accomplished simply by attaching the IC card 82, which stores the set data for updating, to the connector 81 and turning the power ON. Hence, even a person, who is not familiar with the ROM 21, can securely update the set data such as the interlock data. Moreover, the set data can be updated more easily since there is no need to use care not to break the pins of the ROM as it used to.

[0027] FIG. 3 is the flowchart showing another operation of the above art. The configuration of the fire protection receiver is identical to that shown in FIG. 1.

[0028] In this art, a step S11, wherein it is determined whether the IC card has been read after it is determined that the IC card is connected in the step S2 of the flowchart shown in FIG. 2, and a step S12, wherein it is recorded that the read data has been written to the EEPROM 71 after that, are added to the flowchart of FIG. 2.

[0029] More specifically, storing the information, which tells that the data of the IC card 82 has been written (read), in the RAM 22 in the receiver R1 (step S12) after the data for updating stored in the IC card 82 is written to the EEPROM 71 (step S3) allows initialization (step S4) to be carried out directly after checking from the RAM 22 that the data has been read (step S11) if the IC card 82, which has been read, is left connected (if the receiver R1 requiring no data change is actuated), thus omitting wasteful double writing. The IC card 82, from which the set data thereof has been read, may be removed from the connector 81 or it may be left connected. After the IC card 82 is removed, the information in the RAM 22, which has been read, may be cleared. Alternatively, the information, which has been read, may be written to the IC card 82 instead of writing the information, which has been read, to the RAM 22 in the receiver R1.

[0030] An entering means composed of an entering key, check switches, etc. (not shown) is provided in the control unit 41 beforehand. The status of the reading having been finished is indicated on the display unit 31 or printed by the printer 51, and an operator visually confirms it, then operates the aforesaid check switch, thereby storing the read (written) information in the RAM 22 or the like.

[0031] In the case the operation shown in FIG. 3, whether the information has been read is determined from the contents written to the RAM 22 and, according to the determination result, the set data of the IC card 82 is transferred to the EEPROM 71. In the step S11 of FIG. 3, for example, before reading the information, the contents of the IC card 82 are compared with the contents of the EEPROM 71, and if both the contents are the same, then updating is not implemented. This also makes it possible to omit wasteful writing. In this case, the step S12, wherein the state of the reading having been finished is written to the RAM 22 or the like, is unnecessary.

[0032] FIG. 4 is the block diagram showing the fire protection receiver system according to the present invention.

[0033] In the fire protection receiver R1 of FIG. 4, the current set data stored in the EEPROM is written to the IC card and the set data for updating is created according to that data, then the set data for updating is transferred from the IC card to the EEPROM by writing it thereto. In the case of this embodiment, two cards are used; one is a write-only IC card 82w exclusively used for writing the current set data stored in the EEPROM 71 and the other is a read-only IC card 82r, which stores set data for updating. Other basic structure or the like of the receiver R1 is almost the same as that shown in FIG. 1.

[0034] The CPU 11 and the ROM 21 are the examples of the reading means for reading data from the read-only IC card 82r and the first writing means for writing the data read from the read-only IC card 82r to the EEPROM 71 and the second writing means for writing the set data of the EEPROM 71 before updating to the write-only IC card 82w.

[0035] The operation of the above described invention will now be explained.

[0036] FIG. 5 is the flowchart showing the operation

of the invention described above.

[0037] First, the power switch of the receiver R1 is turned ON (step S1). At this time, if the IC card is not connected to the connector 81 (step S2), then initialization is carried out in accordance with the then contents stored in the EEPROM 71 (step S7). Then fire monitoring is performed, display is given on the display unit 31 according to the set data stored in the EEPROM 71, and terminals are controlled (step S8).

[0038] If a change of partition or the like is made at a site, wherein fire protection equipment is installed, then it is necessary to update the set data according to the new partition or the like. For this purpose, the write-only IC card 82w is connected to the connector 81 of the receiver R1 and the set data currently stored in the EEPROM 71 is written to the IC card, which is then sent to a service center, factory, etc. More specifically, the power of the receiver R1 is turned OFF, the write-only IC card 82w is attached to the connector 81 of the receiver R1, and the power switch is turned ON to start the power (step S1). At this time, when the CPU 11 confirms that the IC card is connected (step S2), the CPU 11 reads an attribute area 82wa of the IC card 82w; when it confirms that the write-only IC card 82w is connected (step S3), it reads the set data stored in the EEPROM 71 and the read data is written to the write-only IC card 82w (step S4).

[0039] The write-only IC card 82w is removed from the connector 81 and sent to a service center, for instance. At the service center, the contents stored in the write-only IC card 82w is read and the current set data is displayed on a display (not shown). Referring to the displayed set data and the information on the new partition, new set data is created and the set data for updating is written to the read-only IC card 82r, which is sent to the site.

[0040] At the site, the power of the receiver R1 is turned OFF, the read-only IC card 82r received from the service center is attached to the connector 81, and the power switch is turned back ON to start the power (step S1). If the CPU 11 confirms that the IC card has been connected to the connector 81, the attribute area 82ra of the read-only IC card 82r has been read, and the read-only IC card 82r has been connected (steps S2, S3, and S5), then it reads the set data for updating stored in the read-only IC card 82r, and transfers the read set data for updating to and stores in the EEPROM 71 (step S6). Then, initialization is implemented in accordance with the new contents stored in the EEPROM 71 (step S7), fire monitoring is carried out, display is given on the display unit 31 according to the new set data stored in the EEPROM 71, and the terminals are controlled (step S8).

[0041] FIG. 6 is the flowchart, which specifically shows the writing operation given in the step S4 of FIG. 5.

[0042] When the CPU 11 confirms that the write-only IC card 82w is connected to the connector 81 (step S3), it sets a function k of the number of counts to 0 (step S41), reads the set data from the EEPROM 71 (step S42), and writes the read set data to the write-only IC card 82w (step S43). In the next step, the CPU 11 reads the set data written to the write-only IC card 82w (step S44) and compares it with the set data of the EEPROM 71 (step S45). If they coincide with each other, the CPU 11 decides that the transfer has been completed and it tells that the transfer of the set data has been completed by indicating to that effect on the display unit 31 (step S46), then it goes back to normal processing. If, however, the data of the write-only IC card 82w does not coincide with the data of the EEPROM 71, then the CPU repeats the processing from the step S42 through the step S45 for a predetermined number of times K (step S48), and it indicates that the set data has been improperly transferred by displaying to that effect on the display unit 31 (step S49) before it goes back to normal processing. This makes it possible to check that the set data of the EEPROM 71 has securely been transferred to the write-only IC card 82w.

[0043] FIG. 7 is the flowchart, which specifically shows the writing operation shown in the step S6 of FIG. 5.

[0044] If the CPU 11 confirms that the read-only IC card 82r is connected to the connector 81 (step S5), then it sets the function k of the number of counts to 0 (step S61), reads the set data for updating from the read-only IC card 82r (step S62), and writes the read set data to the EEPROM 71 (step S63), thereby updating the set data. In the next step, the CPU 11 reads the updated set data stored in the EEPROM 71 (step S64) and compares the read set data with the set data of the read-only IC card 82r (step S65). If they coincide with each other, then the CPU 11 decides that the updating has been completed and it tells that the updating has been completed by indicating to that effect on the display unit 31 (step S66) before it goes back to normal processing. If, however, the data of the EEPROM 71 does not coincide with the data of the read-only IC card 82r, then the CPU repeats the processing from the step S62 through the step S65 for a predetermined number of times K (step S68), then it indicates that the set data has been improperly updated by displaying to that effect on the display unit 31 (step S69) before it goes back to normal processing. This makes it possible to check that the set data of the read-only IC card 82r has securely been transferred to the EEPROM 71 and updated. If improper updating occurs, then the set data in question may be printed out using the printer 51 instead of displaying it on the display unit 31, thus allowing the cause of the incomplete updating to be identified. When the control unit 41 is provided with a check switch (not illustrated) and if incomplete updating takes place, then the check switch may be pressed to proceed to the step S7 shown in FIG. 5.

[0045] In this invention, as in the case of the preceding described aspects of the invention, the set data

can be updated easily by a person, who does not know about the ROM. Moreover, since the set data stored in the EEPROM 71 is written to the write-only IC card 82w, the set data before updating can be checked at a service center, allowing the editing to be performed at the service center by referring to the set data before updating. Thus, the set data can be updated in accordance with actual circumstances.

[0046] The write-only IC card 82w and the read-only IC card 82r may be provided with marking on the surfaces thereof or may be designed differently so that they can be visually distinguished.

[0047] In the invention shown in FIG. 4, the write-only IC card 82w and the read-only IC card 82r are prepared so that no beginner accidentally confuses them (or no set data for updating, which has been written at the service center is accidentally erased before updating is completed). Alternatively, the write-only IC card 82w and the read-only IC card 82r may be combined into a single IC card so that writing and reading can be performed using only one card.

[0048] Further, in the invention as described above, the IC cards 82, 82w and 82r are electrically connected to the connector 81. Alternatively, however, the buses connected to the CPU 11 may be electromagnetically or optically connected to the IC cards via a prescribed interface (not shown). Such electromagnetic or optical connection enables the set data to be transmitted without the IC cards being in contact, permitting even more convenient updating of the set data.

[0049] Furthermore, in the invention as described above, data is written to the IC card and data is read from the IC card when the power of the fire protection receiver R1 is turned ON; alternatively, however, a write starting switch and a read starting switch (not illustrated) may be provided on the control unit 41, for example, of the receiver R1 so that data may be written to the IC card and data may be read from the IC card in accordance with a predetermined actuating operation such as turning the starting switches ON, without the power being involved.

[0050] In the above described invention, the IC cards are used as the examples of memory packs; however, there are other examples of memory packs, including an IC board, wherein the IC is mounted on a substrate but not enclosed in a case, and an optical card. Further, the invention discussed above uses the EEPROM 71 as the erasable nonvolatile memory; however, a RAM or the like equipped with a backup power supply may be used as the erasable nonvolatile memory in place of the EEPROM 71.

[0051] Further alternatively, the status of the set data stored in the EEPROM 71 having been written to the write-only IC card 82w and the status of the set data for updating stored in the read-only IC card 82r having been written to the EEPROM 71 may be written to the individual IC cards or in a predetermined memory in the receiver R1 or may be displayed on a display unit in the receiver R1.

[0052] The fire protection receiver according to the present invention are not limited to the embodiments described above, but the scope thereof is based on the scope defined by the attached claims.

[0053] Thus, according to the present invention, a person, who is not familiar with the ROM, can update set data such as interlock relationship data securely and moreover, the updating work is easy.

Claims

1. A fire protection receiver (R1) which carries out general control over a fire detector and controlled equipment actuated interlocked with the fire detector and which provides display thereof, said fire protection receiver comprising:

   a memory means (71, 82) wherein set data for control and display are stored,
   a reading means (11, 21) which reads said set data when power of said fire protection receiver is turned ON or predetermined reading is started, and
   a first writing means (11, 21) for writing said set data which has been read from said memory means, characterised in that
   said memory means (71, 82) comprises an erasable non-volatile memory,
   said reading means (11, 21) is reading said set data for updating from a memory pack wherein said set data for updating set data of the erasable non-volatile memory is stored,
   said first writing means (11, 21) is writing said set data for updating, which has been read from said memory pack, to said erasable non-volatile memory, and
   said fire protection receiver comprises a second writing means for writing the set data stored in said erasable non-volatile memory to the memory pack.

2. A fire protection receiver according to claim 1, characterised by

   a displaying means (31) and a data updating completion writing means for storing the status of the set data for updating said memory pack or in a predetermined memory in the receiver or for displaying it on said displaying means.

3. A fire protection receiver according to claim 1 or 2, characterised in that

   the set data stored in said erasable non-volatile memory (71) includes at least one set datum out of interlock data showing the interlock relationship between said fire detector and control-

led equipment, data on correspondence between terminal address and a place where the terminal is installed, display data to be shown on a display unit of the fire protection receiver, and receiver function data showing the functions of the fire protection receiver.

4. A fire protection receiver according to any of claims 1 to 3, characterised in that

said fire protection receiver carries out general control over a fire detector and controlled equipment actuated interlocking therewith and which provides display thereof,
a portable storing means (82) is provided and used for updating the data set in the fire protection receiver, which is disconnectably connected to said fire protection receiver,
said erasable non-volatile memory (71) is storing the set data for control and display,
said reading means is reading the set data from said portable storing means (82),
said first writing means is writing the set data which has been read from said portable storing means (82) to said erasable non-volatile memory (71), and
said portable storing means (82) comprises at least one memory pack (82r, 82w) whereto the set data stored in said erasable non-volatile memory (71) and the set data for updating the set data of said erasable non-volatile memory (71) is written.

5. A fire protection receiver according to any of claims 1 to 4, characterised in that

said portable storing means (82) comprises a write-only memory pack (82w) for storing said set data stored in said erasable non-volatile memory (71) and a read-only memory pack (82r), wherein set data for updating the set data of said non-volatile memory (71) is stored, and and said set data stored in said erasable non-volatile memory (71) is written to said write-only memory pack (82w), if said write-only memory pack is connected, while it reads said set data for updating from said read-only memory pack (82r) and writes it to said erasable non-volatile memory (71), if said read-only memory pack (82r) is connected.

6. A fire protection receiver according to claim 5, characterised in that

said write-only memory pack (82w) and said read-only memory pack (82r) include attribute areas indicating that they are the write-only memory pack and the read-only memory pack, respectively.

7. A fire protection receiver according to claim 6, characterised in that

said write-only memory pack (82w) and said read-only memory pack (82r) are visually distinguishable.

8. A fire protection receiver according to any of claims 5 to 7, characterised in that

said memory packs are comprising an IC-card, an IC-board, or an optical board.

Patentansprüche

1. Feueralarmempfänger (R1), der eine allgemeine Steuerung eines Feuerdetektors und gesteuerter, abhängig vom Feuerdetektor zu betätigender Ausstattung durchführt und der eine Darstellung derselben zur Verfügung stellt, wobei besagter Feueralarmempfänger umfasst:

ein Speichermittel (71, 82), in welchem Einstelldaten zur Steuerung und zur Darstellung gespeichert sind,
ein Lesemittel (11, 21), welches besagte Einstelldaten liest, wenn die Energieversorgung des Feueralarmempfängers eingeschaltet wird, oder ein vorbestimmter Lesevorgang begonnen wird, und
ein erstes Schreibmittel (11, 21) zum Schreiben besagter Einstelldaten, welche von besagtein Speiehermittel gelesen worden sind, dadurch gekennzeichnet, dass
besagtes Speichermittel (71, 82) einen löschbaren nichtflüchtigen Speicher aufweist,
besagtes Lesemittel (11, 21) besagte Einstelldaten zum Aktualisieren von einem Speicherstapel liest, in welchem besagte Einstelldaten zum Aktualisieren der Einstelldaten des löschbaren nichtflüchtigen Speichers gespeichert sind.
besagtes erstes Schreibmittel (11, 21) besagte Einstelldaten zum Aktualisieren, welche von besagtem Speicherstapel gelesen worden sind, in besagten löschbaren nichtflüchtigen Speicher schreibt, und
besagter Feueralarmempfänger ein zweites Schreibmittel aufweist, um die in besagtem löschbaren nichtflüchtigen Speicher gespeicherten Einstelldaten in den Speicherstapel zu schreiben.

2. Feueralarmempfänger nach Anspruch 1, gekennzeichnet durch ein Darstellmittel (31) und ein Datenaktualisierungsbeendigungs-Schreibmittel

zum Speichern des Status der Einstelldaten zum Aktualisieren des besagten Speicherstapels oder in einen vorbestimmten Speicher in dem Empfänger oder zu deren Darstellung auf besagtem Darstellmittel.

3. Feueralarmempfänger nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass die Einstelldaten, die in besagtem löschbaren nichtflüchtigen Speicher (71) gespeichert sind, wenigstens ein Einstelldatum umfasst aus Abhängigkeitsdaten, welche die Abhängigkeitsbeziehung zwischen besagtem Feuerdetektor und der gesteuerten Ausstattung zeigt, Daten über die Beziehung zwischen einer Endgeräteadresse und einer Stelle, an der die Endgeräteeinheit installiert ist, Darstellungsdaten, die auf einer Darstelleinheit des Feueralarmempfängers zu zeigen sind, und Empfängerfunktionsdaten, welche die Funktionen des Feueralarmempfängers zeigen.

4. Feueralarmempfänger nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, dass

besagter Feueralarmempfänger eine allgemeine Steuerung eines Feuerdetektors und gesteuerter, abhängig davon zu betätigender Ausstattung vornimmt und der eine Darstellung derselben zur Verfügung stellt,
wobei ein tragbares Speichermittel (82) vorgesehen ist und benutzt wird, um den Datensatz in dem Feueralarmempfänger zu aktualisieren, welches abtrennbar mit dem Feueralarmempfänger verbunden ist,
wobei besagter löschbarer nichtflüchtiger Speicher (71) die Einstelldaten zur Steuerung und Darstellung speichert,
besagtes Lesemittel die Einstelldaten von besagtem tragbaren Speichermittel (82) liest,
besagtes erstes Schreibmittel die Einstelldaten, welche von besagtem tragbaren Speichermittel (82) gelesen worden sind, in besagten löschbaren nichtflüchtigen Speicher (71) schreibt, und
besagtes tragbares Speichermittel (82) wenigstens einen Speicherstapel (82r, 82w) aufweist, worin die Einstelldaten, die in besagtem löschbaren nichtflüchtigen Speicher (71) gespeichert sind, und die Einstelldaten zum Aktualisieren der Einstelldaten des besagten löschbaren nichtflüchtigen Speichers (71) geschrieben werden.

5. Feueralarmempfänger nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, dass

besagtes tragbares Speichermittel (82) einen Nurschreib-Speicherstapel (82w) zum Speichern besagter Einstelldaten, die in besagtem löschbaren nichtflüchtigen Speicher (71) gespeichert sind, und einen Nurlese-Speicherstapel (82r), in welchem Einstelldaten zum Aktualisieren der Einstelldaten des besagten löschbaren nichtflüchtigen Speichers (71) gespeichert sind, aufweist, und
besagte Einstelldaten, die in besagtem löschbaren nichtflüchtigen Speicher (71) gespeichert sind, in besagten Nurschreib-Speieherstapel (82w) geschrieben werden, falls besagter Nurschreib-Speicherstapel angeschlossen wird, während er besagte Einstelldaten zum Aktualisieren von besagtem Nurlese-Speicherstapel (82r) liest und sie in besagten löschbaren nichtflüchtigen Speicher (71) schreibt, falls besagter Nurlese-Speicherstapel (82r) angeschlossen wird.

6. Feueralarmempfänger nach Anspruch 5, dadurch gekennzeichnet, dass

besagter Nurschreib-Speicherstapel (82w) und besagter Nurlese-Speicherstapel (82r) Eigenschaftsbereiche aufweisen, die anzeigen, dass sie der Nurschreib-Speicherstapel beziehungsweise der Nurlese-Speicherstapel sind.

7. Feueralarmempfänger nach Anspruch 6, dadurch gekennzeichnet, dass

besagter Nurschreib-Speicherstapel (82w) und besagter Nurlese-Speicherstapel (82r) visuell unterscheidbar sind.

8. Feueralarmempfänger nach einem der Ansprüche 5 bis 7, dadurch gekennzeichnet, dass besagte Speicherstapel eine IC-Karte, eine IC-Leiterplatte oder eine optische Karte aufweisen.

Revendications

1. Récepteur de protection contre l'incendie (R1) qui effectue une commande générale par un détecteur d'incendie et par un équipement commandé, actionné en étant enclenché avec le détecteur d'incendie, et qui en fournit un affichage, ledit récepteur de protection contre l'incendie comportant :

des moyens de mémoire (71, 82) dans lesquels sont mémorisées des données établies pour la commande et l'affichage,
des moyens de lecture (11, 21) qui lisent lesdites données établies lorsque ledit récepteur de protection contre l'incendie est mis en route ou lorsqu'une lecture prédéterminée est commencée, et
des premiers moyens d'écriture (11, 21) pour

écrire lesdites données établies qui ont été lues depuis lesdits moyens de mémoire, caractérisé en ce que

lesdits moyens de mémoire (71, 82) comportent une mémoire non-volatile effaçable,
lesdits moyens de lecture (11, 21) lisent lesdites données établies de mise à jour à partir d'un ensemble à mémoire dans lequel sont mémorisées lesdites données établies destinées à la mise à jour des données établies de la mémoire non-volatile effaçable,
lesdits premiers moyens d'écriture (11, 21) écrivent lesdites données établies de mise à jour, qui ont été lues depuis ledit ensemble à mémoire, dans ladite mémoire non-volatile effaçable, et
ledit récepteur de protection contre l'incendie comporte des seconds moyens d'écriture pour écrire dans l'ensemble à mémoire les données établies mémorisées dans ladite mémoire non-volatile effaçable.

2. Récepteur de protection contre l'incendie selon la revendication 1, caractérisé par des moyens d'affichage (31) et des moyens d'écriture d'achèvement de mise à jour de données destinés à mémoriser l'état des données établies de mise à jour dans ledit ensemble à mémoire ou dans une mémoire prédéterminée dans le récepteur ou pour l'afficher sur lesdits moyens d'affichage.

3. Récepteur de protection contre l'incendie selon la revendication 1 ou 2, caractérisé en ce que les données établies mémorisées dans ladite mémoire non-volatile effaçable (71) comportent au moins une donnée établie à partir des données d'enclenchement représentant la relation d'enclenchement entre ledit détecteur d'incendie et l'équipement commandé, des données concernant la correspondance entre une adresse de terminal et un emplacement où le terminal est installé, les données d'affichage à représenter sur une unité d'affichage du récepteur de protection contre l'incendie, et des données de fonctions du récepteur représentant les fonctions du récepteur de protection contre l'incendie.

4. Récepteur de protection contre l'incendie selon l'une quelconque des revendications 1 à 3, caractérisé en ce que

ledit récepteur de protection contre l'incendie effectue une commande générale par un détecteur d'incendie et par un équipement commandé, actionné en étant déclenché avec celui-ci, et qui en fournit un affichage,
des moyens de mémorisation portables (82) sont fournis et utilisés pour mettre à jour les données établies dans le récepteur de protection contre l'incendie, qui sont connectés de manière déconnectable audit récepteur de protection contre l'incendie,
ladite mémoire non-volatile effaçable (71) mémorise les données établies pour la commande et l'affichage,
lesdits moyens de lecture lisent les données établies depuis lesdits moyens de mémorisation portables (82),
lesdits premiers moyens d'écriture écrivent les données établies qui ont été lues depuis lesdits moyens de mémorisation portables (82) dans ladite mémoire non-volatile effaçable (71), et
lesdits moyens de mémorisation portables (82) comportent au moins un ensemble à mémoire (82r, 82w) dans lequel sont écrites les données établies mémorisées dans ladite mémoire non-volatile effaçable (71) et les données établies destinées à mettre à jour les données établies de ladite mémoire non-volatile effaçable (71).

5. Récepteur de protection contre l'incendie selon l'une quelconque des revendications 1 à 4, caractérisé en ce que

lesdits moyens de mémorisation portables (82) comportent un ensemble à mémoire à écriture seule (82w) pour mémoriser lesdites données établies mémorisées dans ladite mémoire non-volatile effaçable (71) et un ensemble mémoire à lecture seule (82r), dans lequel sont mémorisées les données établies destinées à mettre à jour les données établies de ladite mémoire non-volatile (71),
et lesdites données établies mémorisées dans ladite mémoire non-volatile effaçable (71) sont écrites dans ledit ensemble à mémoire à écriture seule (82w), si ledit ensemble à mémoire à écriture seule est connecté, alors qu'il lit lesdites données établies de mise à jour depuis ledit ensemble à mémoire à lecture seule (82r) et les écrit dans ladite mémoire non-volatile effaçable (71), si ledit ensemble à mémoire à lecture seule (82r) est connecté.

6. Récepteur de protection contre l'incendie selon la revendication 5, caractérisé en ce que

ledit ensemble à mémoire à écriture seule (82w) et ledit ensemble à mémoire à lecture seule (82r) comportent des zones d'attribut indiquant qu'ils sont l'ensemble à mémoire à écriture seule et l'ensemble à mémoire à lecture seule, respectivement.

7. Récepteur de protection contre l'incendie selon la revendication 6, caractérisé en ce que

ledit ensemble à mémoire à écriture seule (82w) et ledit ensemble à mémoire à lecture seule (82r) peuvent être distingués de manière visuelle.

8. Récepteur de protection contre l'incendie selon l'une quelconque des revendications 5 à 7, caractérisé en ce que lesdits ensembles à mémoire sont constitués d'une carte IC, d'une plaquette IC ou d'une plaquette optique.

FIG. 1

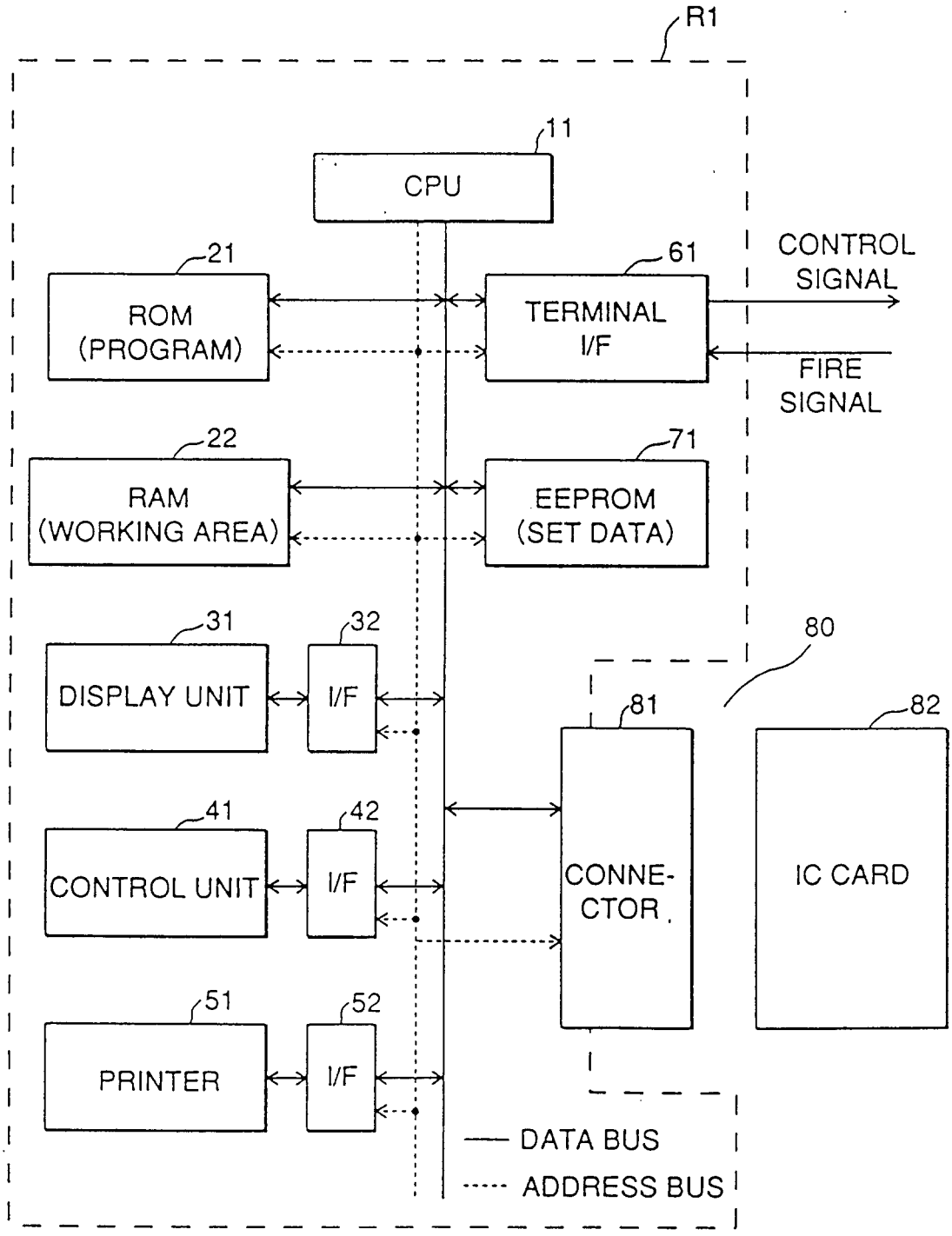

R1
11
CPU
21
ROM
(PROGRAM)
61
TERMINAL
I/F
CONTROL
SIGNAL
FIRE
SIGNAL
22
RAM
(WORKING AREA)
71
EEPROM
(SET DATA)
31
DISPLAY UNIT
32
I/F
80
81
82
41
CONTROL UNIT
42
I/F
CONNE-
CTOR
IC CARD
51
PRINTER
52
I/F
DATA BUS
ADDRESS BUS

FIG. 2

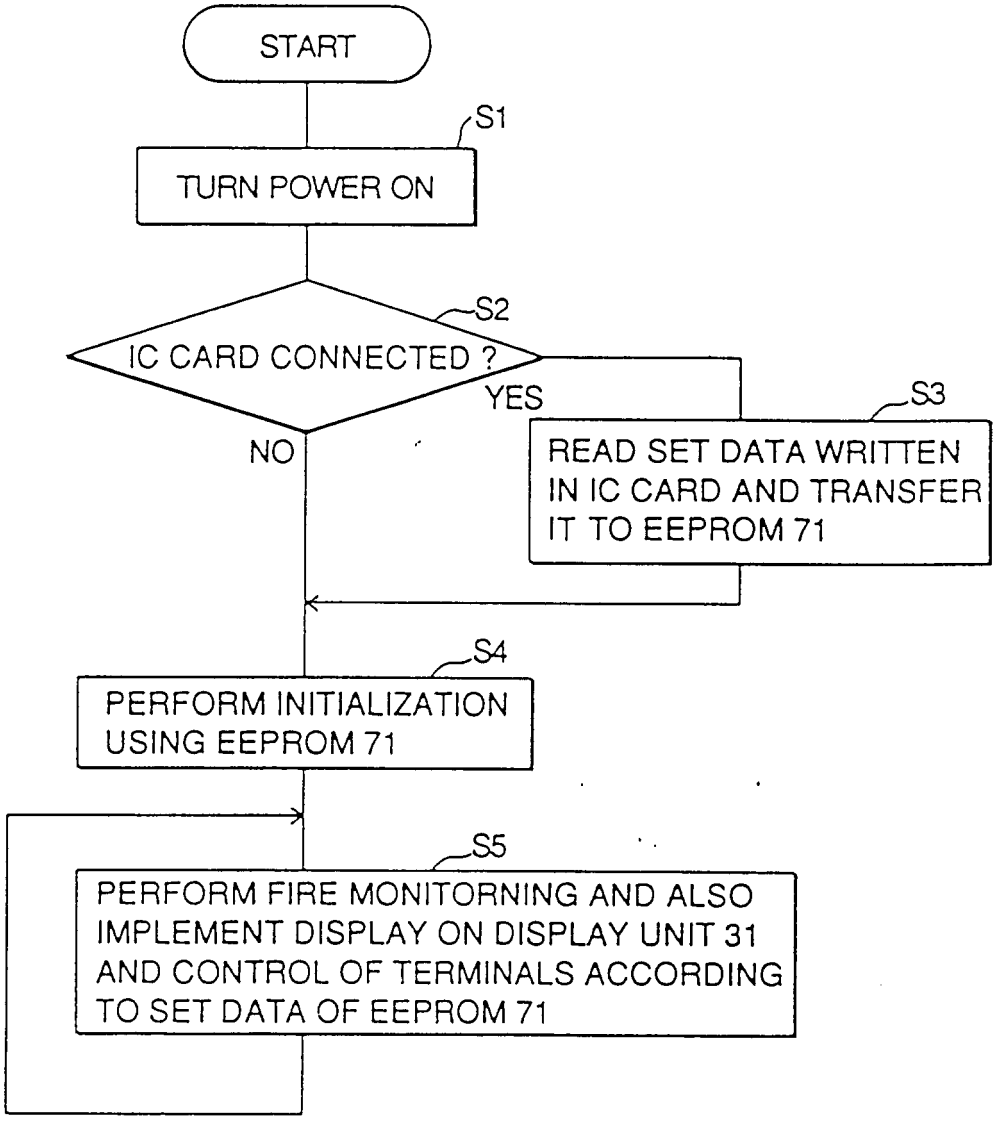

START
S1
TURN POWER ON
S2
IC CARD CONNECTED ?
YES
NO
S3
READ SET DATA WRITTEN IN IC CARD AND TRANSFER IT TO EEPROM 71
S4
PERFORM INITIALIZATION USING EEPROM 71
S5
PERFORM FIRE MONITORNING AND ALSO IMPLEMENT DISPLAY ON DISPLAY UNIT 31 AND CONTROL OF TERMINALS ACCORDING TO SET DATA OF EEPROM 71

FIG. 3

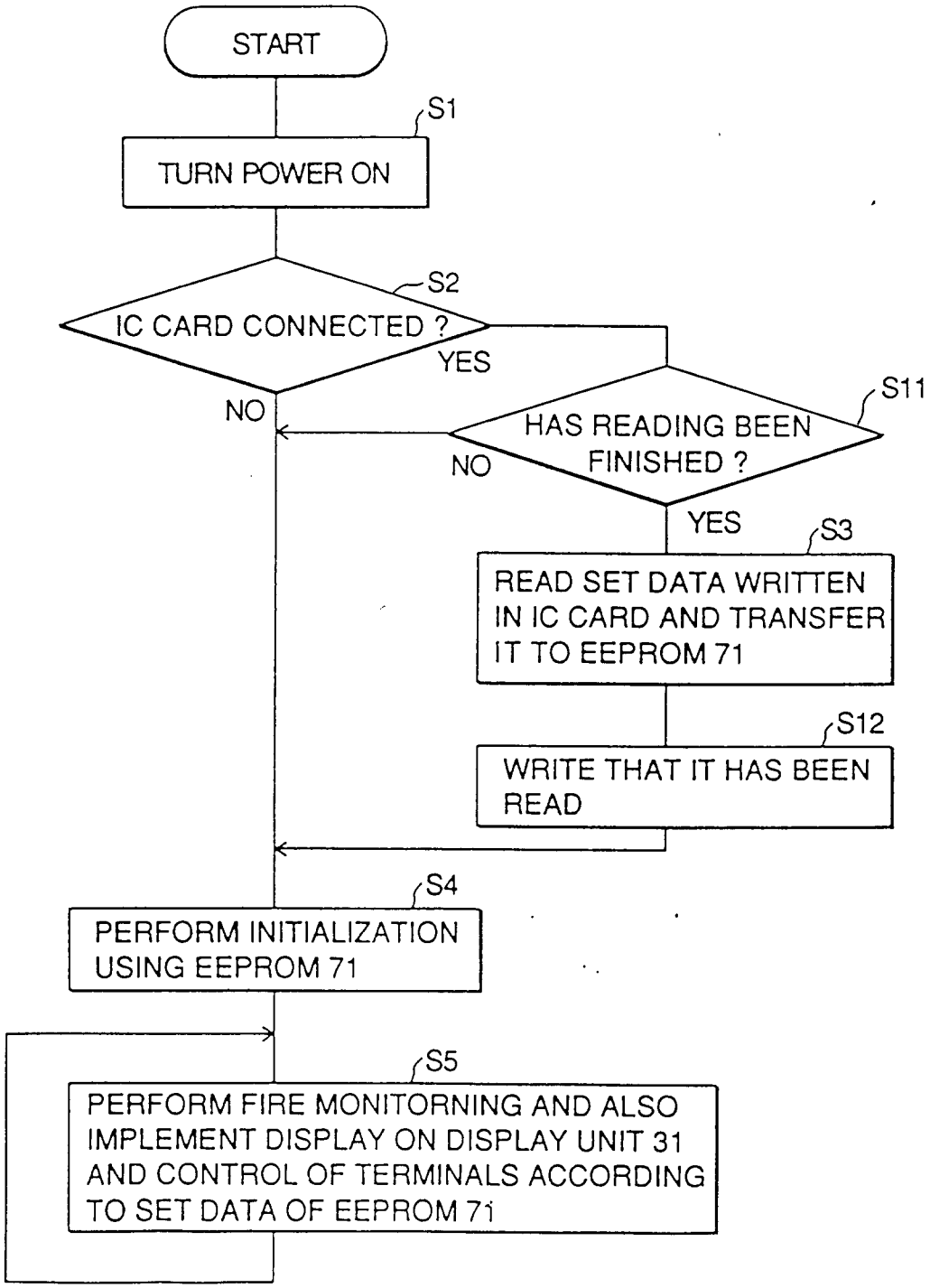

START
S1
TURN POWER ON
S2
IC CARD CONNECTED ?
YES
NO
S11
HAS READING BEEN FINISHED ?
NO
YES
S3
READ SET DATA WRITTEN IN IC CARD AND TRANSFER IT TO EEPROM 71
S12
WRITE THAT IT HAS BEEN READ
S4
PERFORM INITIALIZATION USING EEPROM 71
S5
PERFORM FIRE MONITORNING AND ALSO IMPLEMENT DISPLAY ON DISPLAY UNIT 31 AND CONTROL OF TERMINALS ACCORDING TO SET DATA OF EEPROM 71

FIG. 4

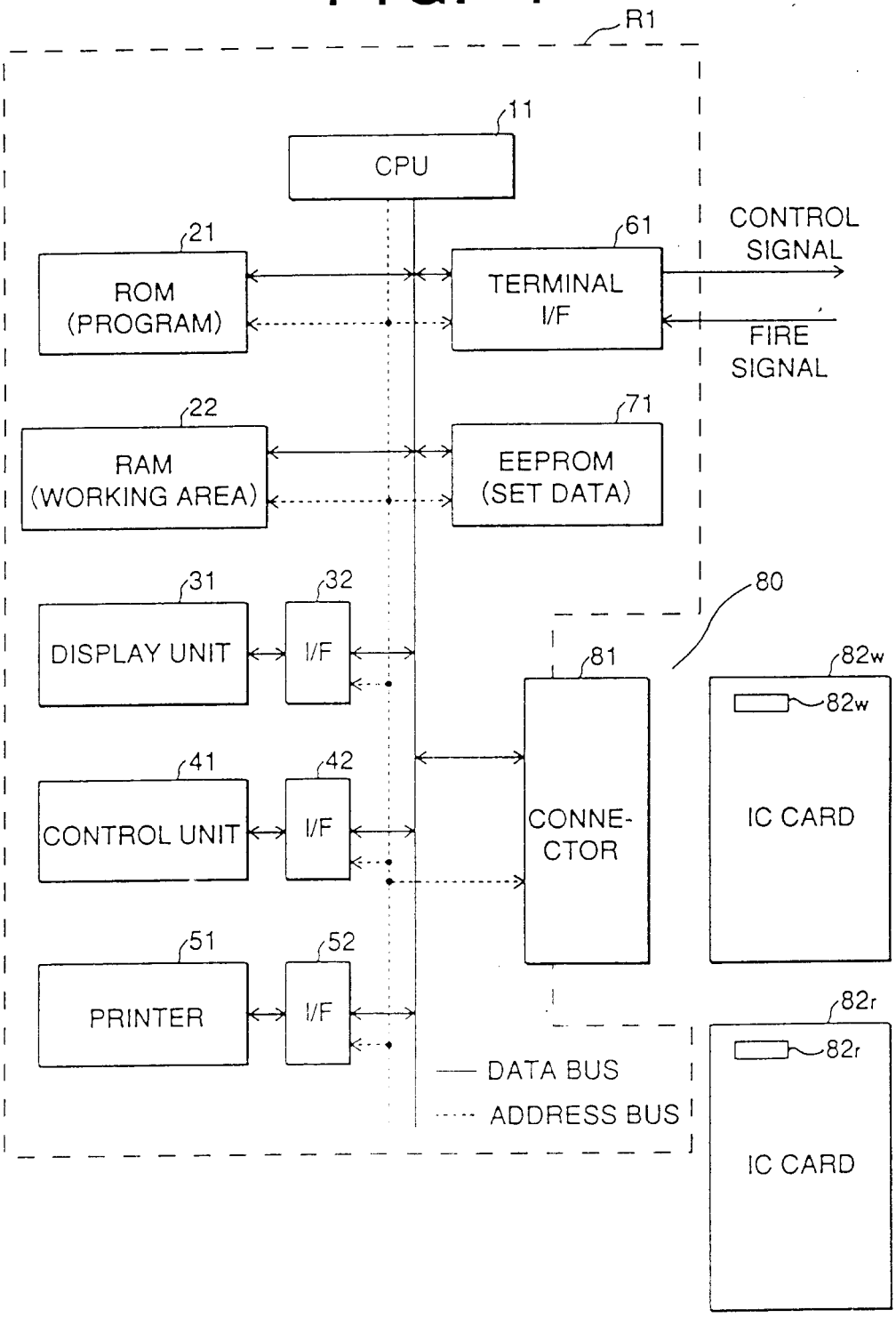

R1
11
CPU
21
ROM
(PROGRAM)
61
TERMINAL
I/F
CONTROL
SIGNAL
FIRE
SIGNAL
22
RAM
(WORKING AREA)
71
EEPROM
(SET DATA)
31
DISPLAY UNIT
32
I/F
80
81
82w
82w
IC CARD
41
CONTROL UNIT
42
I/F
CONNE-
CTOR
51
PRINTER
52
I/F
82r
82r
IC CARD
DATA BUS
ADDRESS BUS

FIG. 5

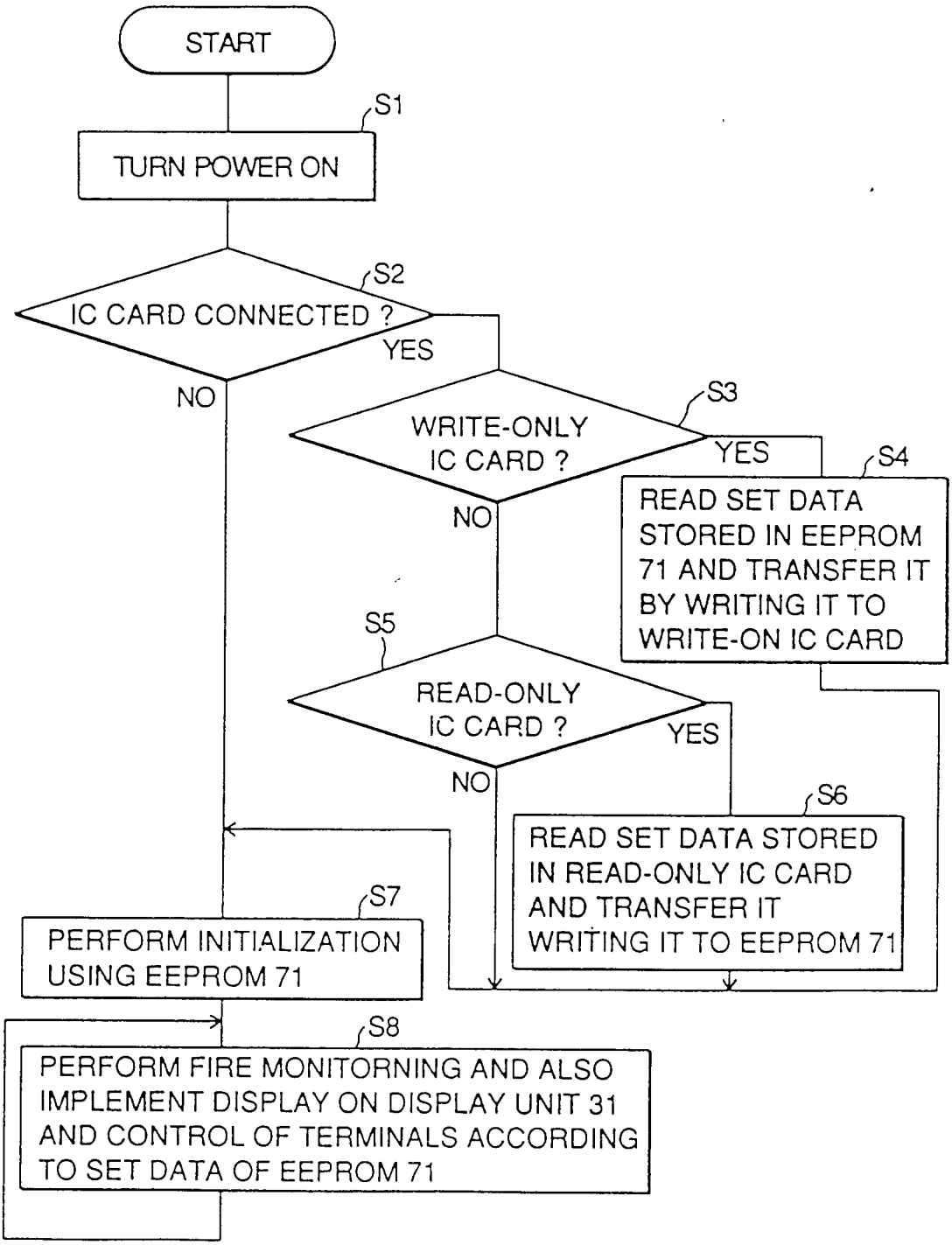

START
S1
TURN POWER ON
S2
IC CARD CONNECTED ?
YES
NO
S3
WRITE-ONLY IC CARD ?
YES
NO
S4
READ SET DATA STORED IN EEPROM 71 AND TRANSFER IT BY WRITING IT TO WRITE-ON IC CARD
S5
READ-ONLY IC CARD ?
YES
NO
S6
READ SET DATA STORED IN READ-ONLY IC CARD AND TRANSFER IT WRITING IT TO EEPROM 71
S7
PERFORM INITIALIZATION USING EEPROM 71
S8
PERFORM FIRE MONITORNING AND ALSO IMPLEMENT DISPLAY ON DISPLAY UNIT 31 AND CONTROL OF TERMINALS ACCORDING TO SET DATA OF EEPROM 71

FIG. 6

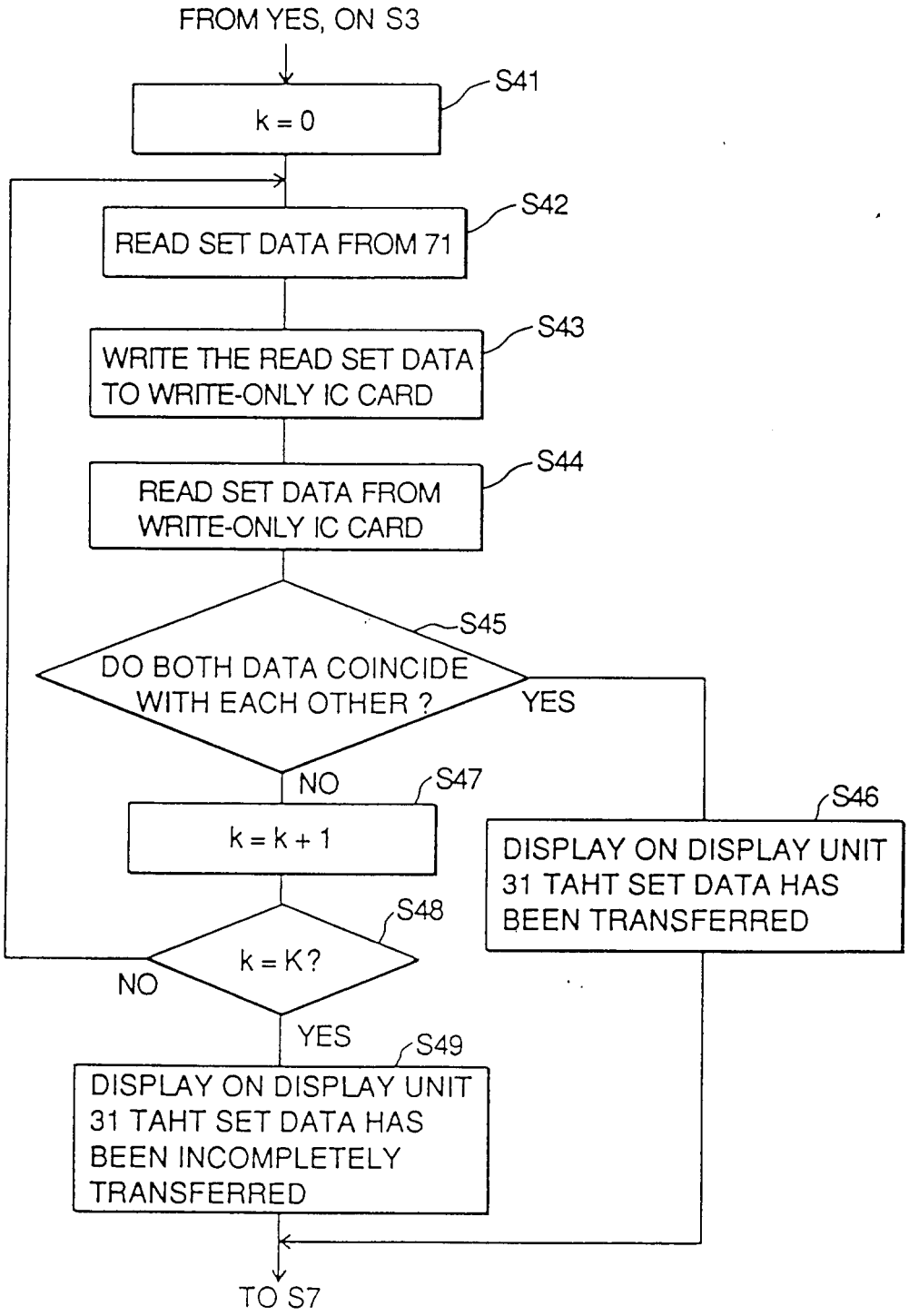

FROM YES, ON S3
S41
k = 0
S42
READ SET DATA FROM 71
S43
WRITE THE READ SET DATA TO WRITE-ONLY IC CARD
S44
READ SET DATA FROM WRITE-ONLY IC CARD
S45
DO BOTH DATA COINCIDE WITH EACH OTHER ?
YES
NO
S47
k = k + 1
S48
k = K?
NO
YES
S49
DISPLAY ON DISPLAY UNIT 31 TAHT SET DATA HAS BEEN INCOMPLETELY TRANSFERRED
S46
DISPLAY ON DISPLAY UNIT 31 TAHT SET DATA HAS BEEN TRANSFERRED
TO S7

FIG. 7

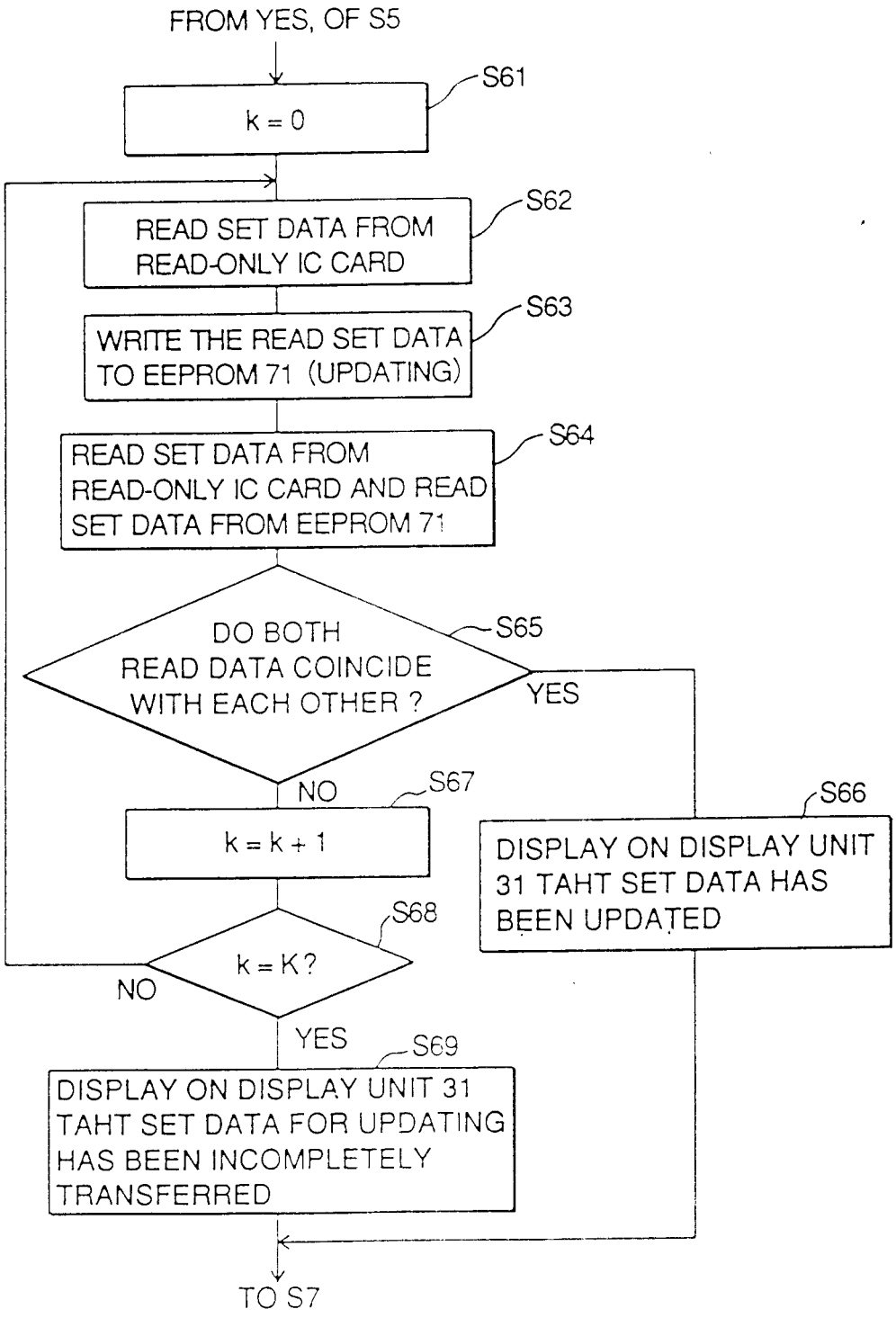
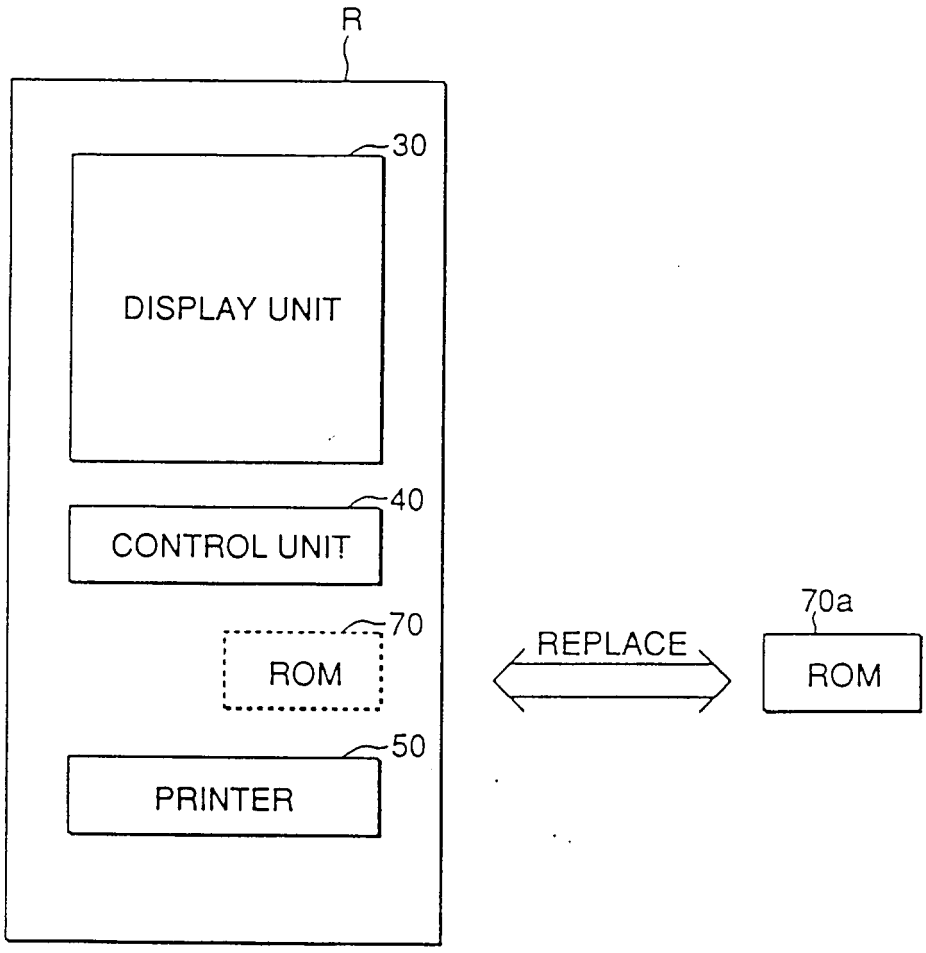

FROM YES, OF S5
S61
k = 0
S62
READ SET DATA FROM READ-ONLY IC CARD
S63
WRITE THE READ SET DATA TO EEPROM 71 (UPDATING)
S64
READ SET DATA FROM READ-ONLY IC CARD AND READ SET DATA FROM EEPROM 71
S65
DO BOTH READ DATA COINCIDE WITH EACH OTHER ?
YES
NO
S67
k = k + 1
S68
k = K?
NO
YES
S69
DISPLAY ON DISPLAY UNIT 31 TAHT SET DATA FOR UPDATING HAS BEEN INCOMPLETELY TRANSFERRED
S66
DISPLAY ON DISPLAY UNIT 31 TAHT SET DATA HAS BEEN UPDATED
TO S7

FIG. 8


R
30
DISPLAY UNIT
40
CONTROL UNIT
70
ROM
50
PRINTER
REPLACE
70a
ROM