$C\epsilon$

UpKey System

UK English

English

TABLE OF CONTENTS

USING THE UPKEY SYSTEM

The UpKey system is designed for transferring data from a computer to machines in a simple and safe way.

The connection between the different components must be made using only the connectors provided without forcing them.

All system components operate under low voltage; therefore there are no electrical risks while using the system.

Data and program files can only be the ones supplied by the N&W network, using a personal computer, on which the specific **Flash Up** program and an **UpKey-PC** adapter are installed, for transferring to the UpKey.

The use of non-original programs is to be considered improper, therefore making the machines on which they are transferred potentially dangerous.

In order to correctly use the system and have the guarantee of storing data efficiently and for a long time, it will be sufficient to adopt the normal precautions for electrical components, and namely:

- The components must be kept in a dry room with a temperature of 0° to 40° C;

- Do not expose the components to heat sources or to direct sunlight for long periods;

- Avoid contact with liquids or damp material;

- Always close the UpKeys with the special lid after each operation.

IN THE EVENT OF FAILURES

In most cases, any technical problems are corrected by small operations; however, before contacting the manufacturer we recommend that this manual be read carefully.
In the event of failures or malfunctions that cannot be solved, contact the following:

NECTA VENDING SOLUTIONS SpA
Via Roma 24
24030 Valbrembo
Italy - Tel. +39 - 035606111

GLOSSARY

The 16-bit electronic technology used in the vending machines allows greater performance and updating of programs in a simple and quick way.

The **CPU** board (central processing unit) and, if present, the **actuation** board (controlling the power users) are fitted with some chips (**Flash EPROM**) where it is possible to write the information and where the programs necessary for running the board itself are stored.

The boards are connected to each other with a "**can-bus**" communication protocol, allowing the exchange of information between the two boards.

The "**firmware**" program necessary for operating the machine is divided into several files according to the number of boards required on the machine.

- The "**boot**" files (start files; one for each board) contain the information necessary for running the board and controlling the connections with other components.

- The boot files are **different** for each board type and the **same** for all machine models; writing the software to the board personalises the boot for the machine type.

- The "**software**", different for each board type and for each machine model, defines the type of machine where the board is fitted and the performance in terms of functioning.

The firmware present in a machine is identified by the machine name and by the program revision number (e.g. Kikko 2.5). This identification allows the management of software updating and the interchange of boards in the different models in the event board replacement because of malfunctions or other.

When using the system it is therefore necessary to take the utmost care in **identifying exactly** which file type and revision is being used.

The UpKey system

A different number of UpKey system components can be used according to the user's needs; this manual describes the minimum required for a single operator.

UPKEY

Small size container for transferring data. Made of plastic with a protective lid for the connector. A two-colour LED, green and red, is visible on the external enclosure, to indicate the different operating conditions.
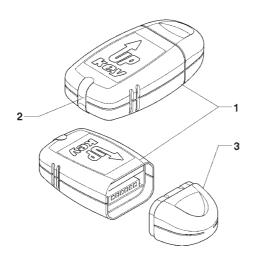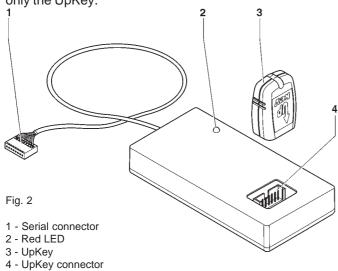
Fig. 1

1 - UpKey
2 - LEDs
3 - Connector's lid.

BOOT LOADER

To be able to use the system it is necessary to provide the electronic boards with a boot file suitable for reading the UpKeys.
The firmware is loaded into the boards fitted in the machines directly at the factory.
To update **previous** or **replacement boards** it is necessary to use a tool (**boot loader**) that allows downloading of the boot file for the boards through a serial communication connector.
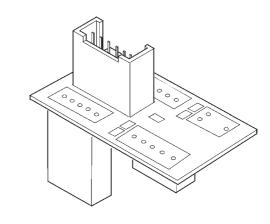Further updating operations can be performed by using only the UpKey.

Fig. 2

1 - Serial connector
2 - Red LED
3 - UpKey
4 - UpKey connector

UPKEY ADAPTER

In order to load the software on the already updated boards the UpKey is used, inserting it directly into the special 6-pin connector on the CPU board.

For the boards manufactured before the introduction of the UpKey it will be necessary to use an **UpKey adapter**; such adapter transmits the UpKey signal on two connectors of the CPU board.

Fig. 3

UPKEY-PC ADAPTER

In order to load data on the UpKey it is necessary to connect to a **Personal computer,** with suitable software installed, using the **adapter** appropriately powered.
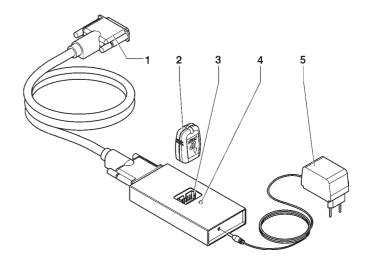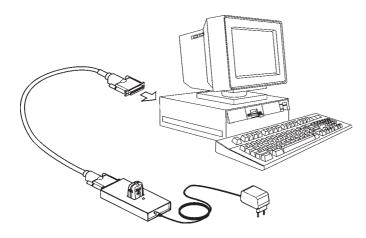
Fig. 4

1 - Parallel connector for PC
2 - UpKey
3 - Connector for UpKey
4 - Green LED
5 - Power supply adapter

The files with the firmware of the various machine models are distributed as a bulk by the N&W network.

A single file, with the name containing the machine initials to which it refers and the revision number, is sent for each update of a single model/version.

The firmware file cannot be read directly; to be able to separate it and manage the various files that compose it, it will be necessary to have a personal computer on which the specific **Flash Up** program is installed and an **UpKey- PC** adapter connected to the parallel port.

When opening the firmware file with Flash Up, this is split into boot files and software files regarding the boards that are actually fitted on the model to be updated.

Only one boot file can be copied on each single UpKey. Two UpKeys will be required for machines fitted with two boards.
Writing to an UpKey deletes that previous content.

In order to copy files from the PC to the UpKeys, do as follows:

- Insert an UpKey into the adapter; the green LED will be lit.

- From the Flash Up window (after entering the requested password), select, by clicking on the ticked box, the boot file of the actuation board.

- Select the LPT port to which the adapter is connected.

- Press the Flash Up "Load" button. The LEDs will start blinking quickly for a short time, then the green LED will stay on fixed. The file is copied onto the UpKey.

- Remove the UpKey from the adapter.

Label the programmed UpKey clearly, taking **special care** to include the **firmware version**.
The label of the above key should include:
"Machine name" boot
Actuation board
Firmware rev. X.X

- Insert a second UpKey into the adapter; the green LED will be lit.

- From the Flash Up window select, by clicking on the ticked box, the boot file of the CPU board and the software files of the CPU board and (if provided) the software file of the actuation board. Make sure that the boot file of the actuation board is unselected.

- Press the mere Flash Up "Load" button. The LEDs will start blinking quickly for a short time, then the green LED will stay on fixed. The files are copied onto the UpKey.

- Remove the UpKey from the adapter.

Label the programmed UpKey clearly, taking **special care** to include the **version**.
The label of the above key should include at least:
"Machine name" CPU boot
"Machine name" CPU
"Machine name" actuations
Firmware rev. X.X

Note:
If the machine is fitted with only one board, both the boot and program files can be copied on only one UpKey.

If the software is updated from the CPU connector, the boot file is not transferred.

If needing to transfer the boot file of the boards (for update or replacement) it will be necessary to use the programmed UpKeys, connecting them to the board through the boot loader.

The various files of a model can have different revision numbers.
The revision number shown on the display of the machines at start-up refers to all files of the model (firmware) and it is the only one to be used as reference.

When proceeding to software update or replacement of a board, check that all boot and software files belong to the same firmware version.

The UpKey can be connected only to the CPU board. With the communication protocol (can-bus) information can be transferred also to the actuation board.
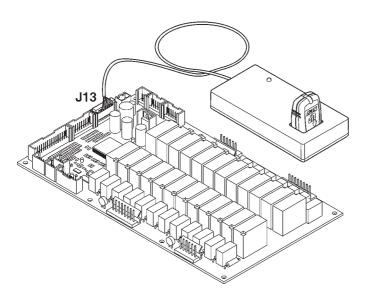
This function was not supported in the first versions, therefore it will be necessary to update the firmware by connecting directly to the actuation board with the boot loader.

COMPLETE UPDATE

In the event the firmware version shown on the display of the machine during start-up were before:
Astro-Oblò   0.5
Kikko   2.0
it will necessary to update the boot file directly into the boards, proceeding as indicated below.

Warning!

The **replacement** boards are supplied **not programmed**, therefore it will **always be necessary** to load the appropriate boot file.

ACTUATION BOARD

- Make sure you have an UpKey with the appropriate boot file of the actuation board loaded, and insert it into the boot loader.

- After switching the machine off, remove the cover from the power supply unit (see user manual of the machine) and insert the connector of the boot loader to connector J13 on the actuation board.

- Switch the machine on and wait for the boot file to be loaded into the actuation board; during this process the green and red LEDs on the UpKey blink quickly. At the end the green LED stays on fixed.

- Switch the machine off and disconnect the boot loader.

The correct boot file is now present in the board, enabling communication of the actuation board with the CPU board via can-bus.

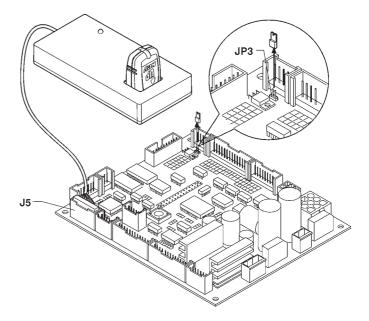**It will in any case necessary to update also the boot file and the software in the CPU board.**

CPU BOARD

- Make sure you have an UpKey with the appropriate boot file of the CPU board loaded, and insert it into the boot loader. While the boot files must be loaded into different UpKeys, also the control software of the CPU and actuation boards can be loaded into the UpKey for the CPU. The update procedure will automatically load all the software present in the UpKey.

- After switching the machine off, open the cover of the board (see user manual of the machine), insert the connector of the boot loader to connector J5 on the CPU board and open jumper JP3.

- Switch the machine on and wait for the software to be loaded into the board; during this process the green and red LEDs on the UpKey blink quickly. At the end the green LED stays on fixed.

- Switch the machine off, disconnect the boot loader and close jumper JP3.

The correct boot file is now present in the board, enabling communication of the CPU board with the actuation board via can-bus.

If the update software were present in the UpKey, also the program of CPU board and actuation board connected would be updated.

The correct boot file is now present in the board, enabling communication of the CPU board also with the UpKey.

UPDATING TO ACCEPT THE UPKEYS

These firmware versions still do not have the option of updating the software using only the UpKey, but it is possible to proceed only by using a personal computer, palmtop or boot loader.
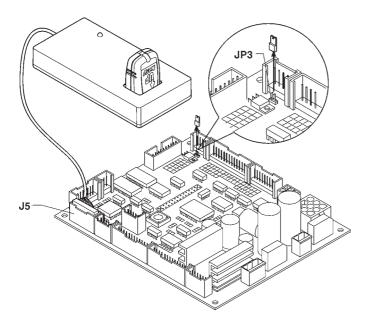
Warning!

The **replacement** boards are supplied **not pro-grammed**, therefore it will **always be necessary** to load the appropriate boot file.

In the event the firmware version shown on the display of the machine during start-up were between:

Astro - Oblò   0.5 e 1.1
Kikko   2.0 e 2.4
Snakky   1.3 e 1.5
Sfera - Rondò   1.0 e 1.1

it will necessary to update the boot file of only the CPU board and the software proceeding as follows:

- Make sure you have an UpKey with the appropriate boot file of the CPU board loaded, and insert it into the boot loader. Also the control software of the CPU and actuation boards can be loaded into the UpKey for the CPU. The update procedure will automatically load all the software present in the UpKey.

- After switching the machine off, open the cover of the board (see user manual of the machine), insert the connector of the boot loader to connector J5 on the CPU board and open jumper JP3.

- Switch the machine on and wait for the boot file to be downloaded; during this process the green and red LEDs on the UpKey blink quickly. At the end the green LED stays on fixed.

- Switch the machine off, disconnect the boot loader and close jumper JP3.

If the update file were present in the UpKey, also the software of CPU board and actuation board connected would be updated.

The correct boot file is now present in the board, ena-bling communication of the CPU board also with the UpKey.

SOFTWARE UPDATE

The firmware versions higher than:

Astro - Oblò   1.1
Kikko   2.4
Snakky   1.5
Sfera - Rondò   1.1

are preset for connecting the UpKey directly to the CPU board, permitting the transfer of the software present in the UpKey to the CPU board itself and to other boards connected.

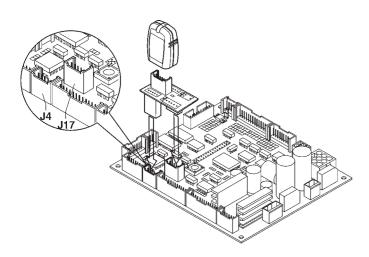**Any boot files present in the UpKey cannot be transferred without using the boot loader.**

Warning!

The **replacement** boards are supplied **not programmed**, therefore it will **always be necessary** to load the appropriate boot file using the Boot loader.
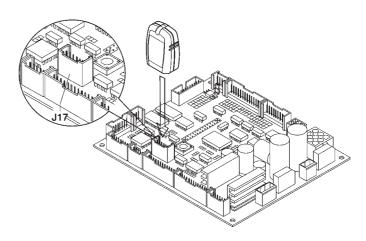
UPKEY CONNECTION

The UpKey has a 6-pin connector; it is connected directly to connector J17 on the recent production CPU boards.
The previous CPU board series is fitted with 5-pin connector J17. In this case it will be necessary to use the UpKey adapter.

5-pin connector

6-pin connector

UPDATE

In order to load a higher software version, do as follows:

- Make sure you have an UpKey with loaded the control software of the CPU and actuation boards present on the machine. The update procedure will automatically load all the software present in the UpKey.

- After switching the machine off, open the cover of the CPU board (see user manual of the machine) and connect the UpKey.

- Switch the machine on and wait for the software files to be loaded into the boards; during this process the green and red LEDs on the UpKey blink quickly. At the end the green LED stays on fixed.

- Switch the machine off and disconnect the UpKey, if necessary removing also the adapter.

UPDATING BANKS OF MACHINES

The **replacement** boards are supplied **not pro-grammed**, therefore it will **always be necessary** to load the appropriate boot file and software using the Boot loader physically connected to the board.

If several slave machines are connected to a master machine, the update operation must be performed for each single slave.

In order to update the CPU board software of a slave machine connected in a bank of machines, do as follows.

- Make sure you have an UpKey with loaded the control software of the CPU boards for the slave vending machines.

- Switch off all machines in the bank.

- Open the cover of the CPU board in the master machine (see user manual of the machine) and connect the UpKey.

- Switch on first a slave machine and then the master machine. The update procedure will automatically load the software present in the UpKey into the CPU board of the slave machine through the can-bus connection.

- Switch off all machines and disconnect the UpKey.

If the bank is composed of several slave machines, repeat the operation switching on first the second slave and then the slave machine.
The first slave will stay switched off.

LAMP SIGNALS

The red and green LEDs of the UpKey, according to switch-on combinations, supply the following indications:

Green and red blinking quickly

Normal software transfer.

Green fixed

Software transfer ended correctly

Green and red blinking slowly

The firmware present in the UpKey is not compatible with the one present in the machine.

Red fixed

No communication. Check the presence of the firmware in boards and UpKey

LEDs switched off

Hardware failure or no power supply.

EDITION 2004 05   CODE: H 236U 00