

**BASIC HANDLING  
To Programme  
ClassA and ClassB Modules**



**PRESENTATION**

This guide explains the Basic Handling of the SPI-300 (Ref. 4070) Programming Unit to programme ClassA and ClassB headend modules from IKUSI. The particular user guides for each type of module, which explain in detail the respective programming processes, are shipped in PDF format in the enclosed CD-ROM.

All programming processes are carried out through a guided menu that uses the keypad of the SPI-300 :



**Keys ↑ and ↓ :**

- Vertical displacement of the slide.
- Modification of a parameter value.
- Change of page within a menu option.

**Keys ← and → :**

- Horizontal displacement of the slide.
- Change of the command displayed at the lower left corner of the screen.
- Change of page in selection lists.

**Keys ⬅ and ➡ :**

- Use of the commands displayed at the lower corners of the screen (left and right, respectively).

**Numerical keys :**

- Selection of menu option.
- Selection of parameter.
- Entry of parameter value.

**Key "C" :**

- Deletion of the character selected by the slide.

**Key "." :**

- Entry of decimal point.

**Accessories**

The SPI-300 is supplied with the following accessories:

- 1 "RJ-45 / DB-9" interfacing cable to link the unit to the ClassA/ClassB modules.
- 1 "RJ45 / USB" interfacing cable to link to the MDI, SZB and STG modules.
- 1 CD-ROM with a) the particular PDF-format user guides to programme each of the aforementioned modules and b) the software to update the firmwares of the ClassA/ClassB modules and the one of the SPI-300 proper.



RJ-45 / DB-9 cable



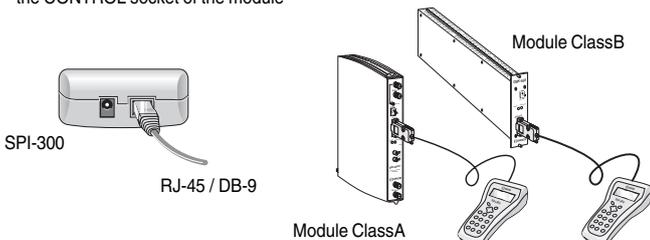
RJ-45 / USB cable



CD-ROM

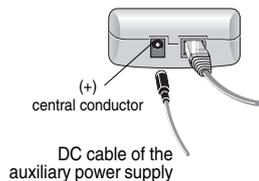
**Connecting the Cable**

To programme ClassA and ClassB modules you must use the enclosed RJ-45 / DB-9 cable. The RJ-45 tip plugs in the rear socket of the SPI-300 and the DB-9 tip plugs in the CONTROL socket of the module



**Using an Auxiliary Power Supply**

The SPI-300 does not require batteries, it is powered directly from the module to which is connected. Only if you are going to perform a firmware update through your PC, you need an auxiliary +15VDC/1A power supply. The DC cable of the power supply plugs in the rear jack socket of the programming unit.



**Basic Handling**

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## 1. USER'S INTERFACE

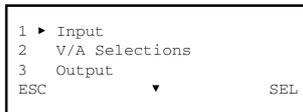
Access to programming functions of the SPI-300 is very simple through a collection of screens that allow to select options, adjust parameters and obtain diverse information.

### 1.1 - Screens

All screens have a similar format. There are 5 types: the Menu Screens, the Setting Screens, the Information Screens, the Warning Screens and the Error Screens. In the lower corners of every screen are displayed one or two commands which are used pressing the keys  and . (The key  is for the command on the left corner and the key  for that on the right corner).

#### THE MENU SCREENS

There is one main menu screen and several submenu screens. Within a menu or submenu, choosing of an option may be done in two ways:



- Placing the slide on the corresponding line of the screen and then using the SEL command (key ). Or, more directly:
- At the numerical keypad, pressing the digit that heads the screen line that refers to the option.

At the lower corners of the menu screens two commands appear: ESC (return to the previous menu) and SEL (access to the selected menu or submenu). When a menu or submenu has many options, it is displayed in several screens, so-called "pages". This pages present in the lower line the scroll arrows  and ; change of page is accomplished through the keys  and .

(SEL is abbreviation for "select" and ESC is abbreviation for "escape").

#### THE SETTING SCREENS

They allow to set the operating parameters of the connected module. A module may have several screens grouping parameters of a same section or category (for example: input parameters, video/audio selections, etc).

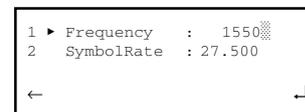
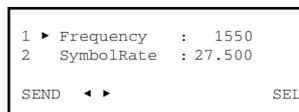
These screens show in the lower line the arrows  and , which means that it is possible to change, through the keys  and , the command that appear at the left corner of the screen. These commands are the following:

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- SEND** : When you use this command, the setting values shown on the screen are established in the module. The SEND command will be automatically replaced by the DONE command just when the values have been sent.
- DONE** : The setting values are simply stored in the SPI-300, so that they remain available either to be sent to the module (SEND command) or to constitute a "module configuration" (page 12). After using the DONE command the programme goes back to the previous screen.
- CANCEL** : This command closes the screen without saving any change or setting.

Selection of a parameter for adjusting it next may be done in two ways:

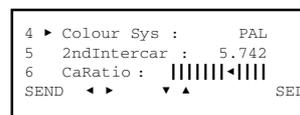
- Placing the slide on the corresponding line of the screen and then using the command (key ). Or, more directly:
- At the numerical keypad, pressing the digit that heads the screen line that refers to the parameter.



When you select a parameter, the two commands at the lower corners of the screen are replaced for these others:

-  : Validate a modified parameter value.
-  : Invalidate the changes which you have done in the present screen.

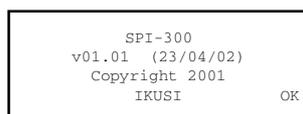
When a module has many setting parameters within the same category (for example, it has many output parameters) the setting screen is composed of several pages, each one with scroll arrows  and  that warn such a circumstance. Change of page is accomplished through keys  and .



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#### THE INFORMATION SCREENS

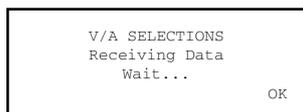
They present the results of a determined operation and inform about the configuration and status of the connected module. The About... screen is an example of this type of screens:



These screens close using the OK command at the lower right corner —by pressing, as it has already said, the key .

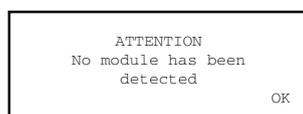
#### THE WARNING SCREENS

They appear to inform about the development of an operation or to advise the cancellation. They close using the OK command (key .



#### THE ERROR SCREENS

They appear to inform about the impossibility to perform a determined operation or to complete the action of a command. They close, in the same way, using the OK command.

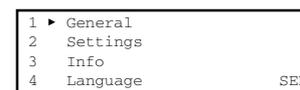


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### 1.2 - The Main Menu Screen

From this screen you can accede all options, parameters and commands. It has 4 menus, among them the menu for changing the operation language.

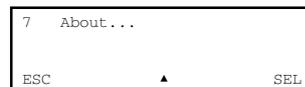
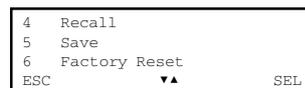
The SPI-300 comes to operate in english. To change the language, press "4" on the numerical keypad. A list of languages appears. Place the slide on the wished line and press . Henceforth the SPI-300 will operate in the language you have chosen.



- General** menu : Includes general application commands.
- Settings** menu : Contains, grouped by sections or categories, all the setting parameters of the connected module, .
- Info** menu: Allows to get access to detailed information about the functioning of the module, further on the one provided by the screen that comes after the initial screen (this screen appears just when the SPI-300 is connected to the module).

The commands of the **General** menu are the same for all the modules:

- Detect** : Performs the detection process of the connected module.
- Send** : Establishes in the module the parameter values which have been modified.
- Update** : Updates the firmware installed in the module.
- Recall** : Brings back to the screen a "module configuration" which was previously created with the Save command. This menu option is manifested useful to quickly load repetitive data on different modules.
- Save** : It is used to create a "module configuration" with the parameter values and use options which are currently displayed in the **Settings** menu.
- Factory Reset** : Restores all parameter values that were established in the module when it left the factory.
- About...** : Indicates simply the firmware version of the SPI-300.



These commands are displayed on three pages and are explained in detail in section 2 (pages 10-15).

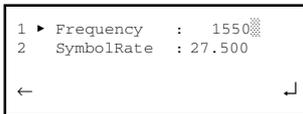
The contents of the **Settings** and **Info** menus are different for each type of functional module and they are explained in the particular user guides.

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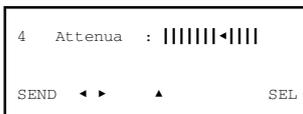
**1.3 - Entering Data**

Three different types of elements may be presented on the screens to enter adjustment or selection data:

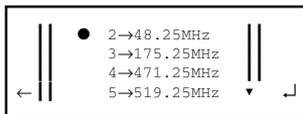
- "Numerical field" : As the name indicates, this element admits only numerical data. Modification of a number (value of parameter) may be carried out in three different ways:
  - a) Digit by digit. Place the slide on the digit you want to change (the slide is moved using keys ← and →) and then press repeatedly the key ↑ or ↓ until the desired digit appears.
  - b) Changing the number complete. Place the slide on the first digit of the number you want to change and then enter the new number complete through the keypad. The key "C" is used to delete a wrong digit.
  - c) Using increments. Place the slide on the right of the number you want to change and then press repeatedly the key ↑ (ó ↓). Each time the key is pressed the number is changed by a preestablished amount. If the key is held pressed, the change is effected fast.



- "Slide Icon" : This element is used to modify without precision the value of a parameter, by moving left-right the slide over a group of vertical bars which serve as reference for setting.



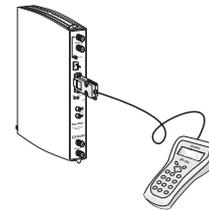
- "Pick list" : Is a element that contains a folded list. When you select it (SEL command), the choices of the list are displayed. Then you can select a choice. (With the keys ← and → you can browse through the pages of the list).



**2. PROGRAMMING THE MODULES**

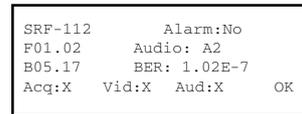
**2.1 - Connecting the SPI-300**

The modules of a headend are programmed one by one through individual connections to the SPI-300. To begin the programming of a module, first power it and then plug the cable of the programming unit into the CONTROL socket.



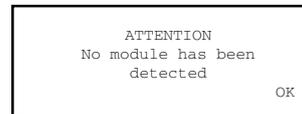
**2.2 - Detection of the Module**

When you connect the SPI-300 to the module, all data for identification, configuration and status of the module are loaded on the SPI-300. A detection screen appears for a short time, and next the display shows the Basic Information screen, which identifies the module and presents its most representative configuration and status data.



The screen closes using the OK command (key ○). The Main Menu Screen appears (page 8); through the **Settings** and **Info** menus you can know in detail all current configuration and status data of the module.

If because of any circumstance the module has not been detected (it is not powered, there is a failure in the connection to the SPI-300, ...) the following error screen appears:



Close the screen by using the OK command. The Main Menu Screen appears. In this case —module not detected— the unique menu is **General**, which contains only the *Detect* and *About Of* commands. To perform again a module detection operation, choose the *Detect* command..

**2.3 - Parameter Setting**

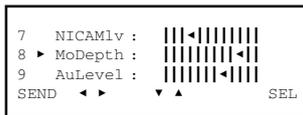
The parameter setting is carried out all the **Settings** menu long. This menu presents, throughout several screens, the module's parameters grouped by sections or categories.

Regardless the module type is, the setting process is as follows:

1. In the **Settings** menu, select the category of the parameters to be set (Input, Output, V/A Selections, ...).
2. Enter the setting values.
3. Send the set values to the module by using the SEND command at the left lower corner of the screen (key ○).
4. Select, if necessary, other parameter category and repeat the previous operations as far as all the parameter values have been set.

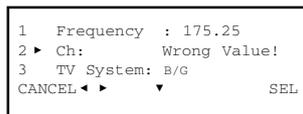
NOTE: Each time you use the SEND command, you send to the module not only the values you have modified in the present screen, but also all the values modified in the previous screens. Remember that the SEND command is also available in the **General** menu (page 8).

Nevertheless the process described, some parameters are set in real time, i.e. the values entered are transmitted instantaneously to the module (you have not to use the SEND command). It occurs, for example, with the "Modulation Depth" and "Audio Level" parameters:



If after entering new setting values you use the DONE command (left lower corner of the screen) instead of the SEND command, these values are not sent to the module, but they are stored in the RAM memory of the SPI-300. If you use the CANCEL command, the screen closes without having effect the parameter values previously entered.

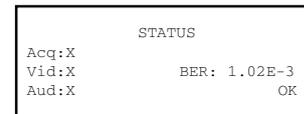
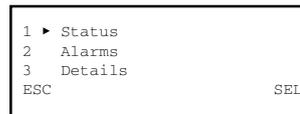
The software controls the setting values you enter, in such a way that an error message is displayed if these values are not appropriated. The message appears just when you try to make effective these values using the SEND or the DONE commands.



**2.4 - Looking Up Information**

From the **Info** menu you have access to detailed information about the connected module, regardless it has been programmed or not. Information is shown throughout three or more screens, each one related to a menu option. There are three available options for every module:

- **Status** : Displays the module working conditions.
- **Alarms** : Reports what alarms are active and the type of them.
- **Details** : Identifies the module and displays outstanding data.



The information is periodically updated. To close the screen, use the OK command (key ○).

**2.5 - Using Module Configurations**

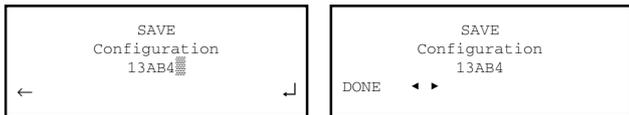
A Module Configuration is a collection of parameter values and use options. Working with configurations allow to quickly load repetitive data in different modules: instead of entering, one by one, the setting values for all the parameters and use options, you can enter a configuration by using a simple command. The SPI-300 allows to create, and to use later on, up to 500 different configurations for each type of module; for this, it utilizes the two following functions:

- a) **Save Configuration**: All parameter values and use options which are currently in the RAM of the SPI-300 (those displayed throughout the **Settings** menu after using the SEND or DONE commands) are stored in a register of the programming unit, with a configuration name which is assigned by the user.
- b) **Recall Configuration**: The parameter values and use options that correspond to a configuration are loaded onto the RAM of the SPI-300. Then they can be established in the module by using the SEND command.

Both functions are chosen from the *Save* and *Recall* options of the **General** menu:

## – Save option :

When you choose the **Save** option in the **General** menu, a new screen appears. In this screens you must enter the name you want for the configuration:

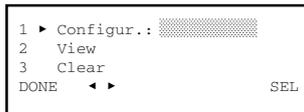


You can use either numerical or alphabetical characters using the keypad. To write an alphabetical character, enter any digit and next press repeatedly the key  $\uparrow$  or  $\downarrow$  until the desired character appears (...7, 8, 9, A, B, C...).

Press the key  $\rightarrow$  ( $\downarrow$ ) to validate the name you have entered: a new screen appears. Use the **DONE** command (key  $\rightarrow$ ) to finally create the configuration. Or press the key  $\leftarrow$  ( $\leftarrow$ ) to close the screen without creating any configuration.

## – Recall option :

When you select the **Recall** option of the **General** menu, a screen with three options appears:



- **Configuration** : You can select a configuration from a pick list.
- **View** : Allows to view the contents of the configuration you have selected in the **configuration** option.
- **Clear** : It is used to clear the configuration selected.

Once you have selected a configuration, you can either send it directly to the module (**SEND** command, key  $\rightarrow$ ), or simply to load the data onto the RAM of the SPI-300 (**DONE** command) in order to modify some parameter value through the **Settings** menu. By using the **CANCEL** command you leave without doing any operation.

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**2.6 - Updating Module Firmware**

The firmware is a software loaded on the module that takes charge of its basic functioning. This software is not modifiable by the user, but may be updated for some ClassA and ClassB modules (those where the **General** menu contains the **Update** option).

To perform a firmware update, you need, naturally, the corresponding file supplied by IKUSI. The name of this file fits the expression FIRMxxxxxxxxyyy.HEX, where:

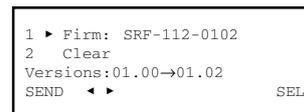
- the 8 characters "x" represent the name of the module. If the name has only 7 characters, you must add the character "-" (hyphen) on the eighth position.
- the 4 characters "y" represent the order number of the firmware version. If the number has 3 characters (dot is not considered), you must complete it with a "0" (zero) on the first position.

Ex.: The name of the version 1.02 for the SRF-112- module is

FIRMSRF-112-0102.HEX

To perform an update process, first you must load the firmware file on the SPI-300 in the way that is explained in the **Appendix A - Firmware Update** (pages 16 to 19).

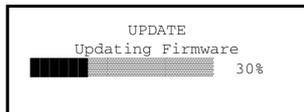
Once the firmware has been loaded on the SPI-300, choose **Update** in the **General** menu. The following screen appears:



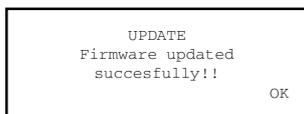
- **"Firmware"** : You can select a firmware file from a pick list.
- **"Clear"** : It is used to clear in the list the file you have selected in the previous option. It allows to eliminate old files.
- **"Versions"** : This line displays two version numbers: the current firmware version of the module—on the left of the arrow—and the version of the file shown in the "Firmware" line (that is to say, the last four digits). Make sure the version number on the right of the arrow is the one you want to load in the module.

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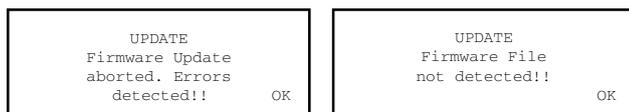
Use the **SEND** command (key  $\rightarrow$ ). Loading of firmware begins and a progress bar displays the course of the process:



Once loading is completed, an information message announcing that the firmware has been successfully updated appears on the screen. Use the **OK** command (key  $\rightarrow$ ). The screen closes and the programme goes back to the **General** menu.



If diverse errors during firmware updating prevent go on the process, an error screen appears:



Use the **OK** command (key  $\rightarrow$ ). The screen closes and the programme goes back to the **General** menu.

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**Appendix A — FIRMWARE UPDATE**

The CD-ROM supplied with the SPI-300 contains a Load Software that you must use to update the firmware of the ClassA and ClassB modules, as well as the one of the SPI-300 proper. This software must be previously installed on a PC.

**A.1 - Installing Load Software on the PC**

The minimum requirements your computer needs to install Load Software are the following:

- Computer : IBM-Compatible 486 or higher
- Hard Disk : 10 MB free space
- CD-ROM Drive : Installed
- Serial Port : COM Port, RS-232
- Mouse : Installed
- RAM : 16 MB (64 MB recommended with Windows 2000 and XP)
- Display : VGA
- Operating System : Windows® 95 / 98 / ME / NT / 2000 / XP

To install Load Software:

1. Start Microsoft Windows.
2. Insert the CD-ROM labeled *SPI-300 Install Software* into the CD-ROM disk driver (D normally).
3. Programme should be automatically loaded . If not, choose *Run...* in the Start Menu. In the Command Line text-entry box, type `D: \SETUP` and choose **OK**. The install dialog box will appear.
4. Follow the onscreen instructions to complete the installation.

Now the programmes folder of the Start Menu will include the "SPI-300 Loader" programme, from which you can launch the application.

The Load Software so installed allows:

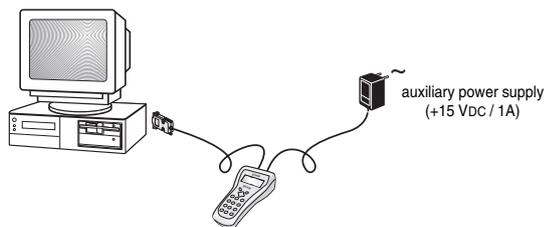
- a) To load in the SPI-300 new versions of firmware files for ClassA and ClassB modules. These files will remain available to be installed on the modules (Paragraph 2.6 : "Updating Module Firmware").
- b) To update directly the firmware of the SPI-300 Programming Unit.

The firmware files are supplied by IKUSI and they can be downloaded from <http://www.ikus.com>. You must copy these files in the hard disk of your PC.

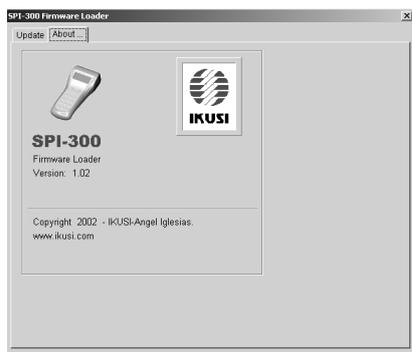
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### A.2 - Loading Firmware Files on the SPI-300

The load of the firmware files on the SPI-300 is carried out from the PC on which you have installed the Load Software. Using the RJ-45 / DB-9 cable, connect the SPI-300 to the serial port of the computer. You require also an auxiliary power supply to feed (15 VDC / 1A) the SPI-300. The picture shows these interconnections:

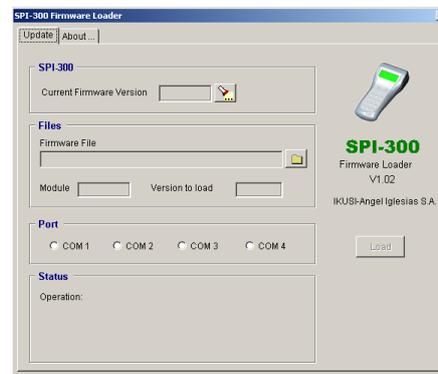


1. Once you have made the connections pointed out, switch on the computer.
2. Click on the Programmes folder of the Start menu. Then click on the "SPI-300 Firmware Loader" icon. The "SPI-300 Firmware Loader" window appears. The window has 2 cards. The *About...* card shows simply the firmware version of the "Firmware Loader" software installed:



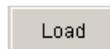
3. Click on the Update label. The *Update* card appears:

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4. The *Update* card presents the following data-entry and information boxes:

- "SPI-300 - Current Firmware Version" : Shows the version number of the firmware which is currently installed on the SPI-300. If it does not appear, click on the icon
- "Files - Firmware File" : Click on the "folder" icon . Find along the hard disk the firmware file you want install on the SPI-300 and select it (the name of the file will be FIRMxxxxxxxxxyyy.HEX, see page 14).
- "Files - Module" : Name of the module to which the selected firmware file is related.
- "Files - Version to Load" : Shows the version of the selected firmware.
- "Port" : You must choose the serial port to which the SPI-300 is connected.
- "Status" : During load process (*Load* button) a progress bar appears here.
- *Load* button : Click here to begin the load process. At the end, the firmware you have selected will have been loaded on the SPI-300 and it will remain available to carry out the firmware update of the modules related (pages 14/15).



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### A.3 - Updating SPI-300 Firmware

The required equipment and the process to be carried out are similar to those described in the previous paragraph A.2. The unique change is that you must select in this case a firmware file for SPI-300.

The name of the file will be FIRMSPi-300-yyy.HEX, where the four characters "y" represent the order number of the firmware version. If the number has 3 characters (dot is not considered), you must complete it with a "0" (zero) on the first position.

Ex. : The name of the version 1.01 firmware file is  
FIRMSPi-300-0101.HEX

Once finished the load process, the SPI-300 firmware will have been updated with the new version and, for that, new features will have been added (interface improvement, capacity to programme new type of modules, etc.).

### IKUSI - Ángel Iglesias, S.A.

Paseo Miramón, 170  
20009 San Sebastián  
SPAIN

Tel.: +34 943 44 88 00  
Fax: +34 943 44 88 19  
[www.ikus.com](http://www.ikus.com)

