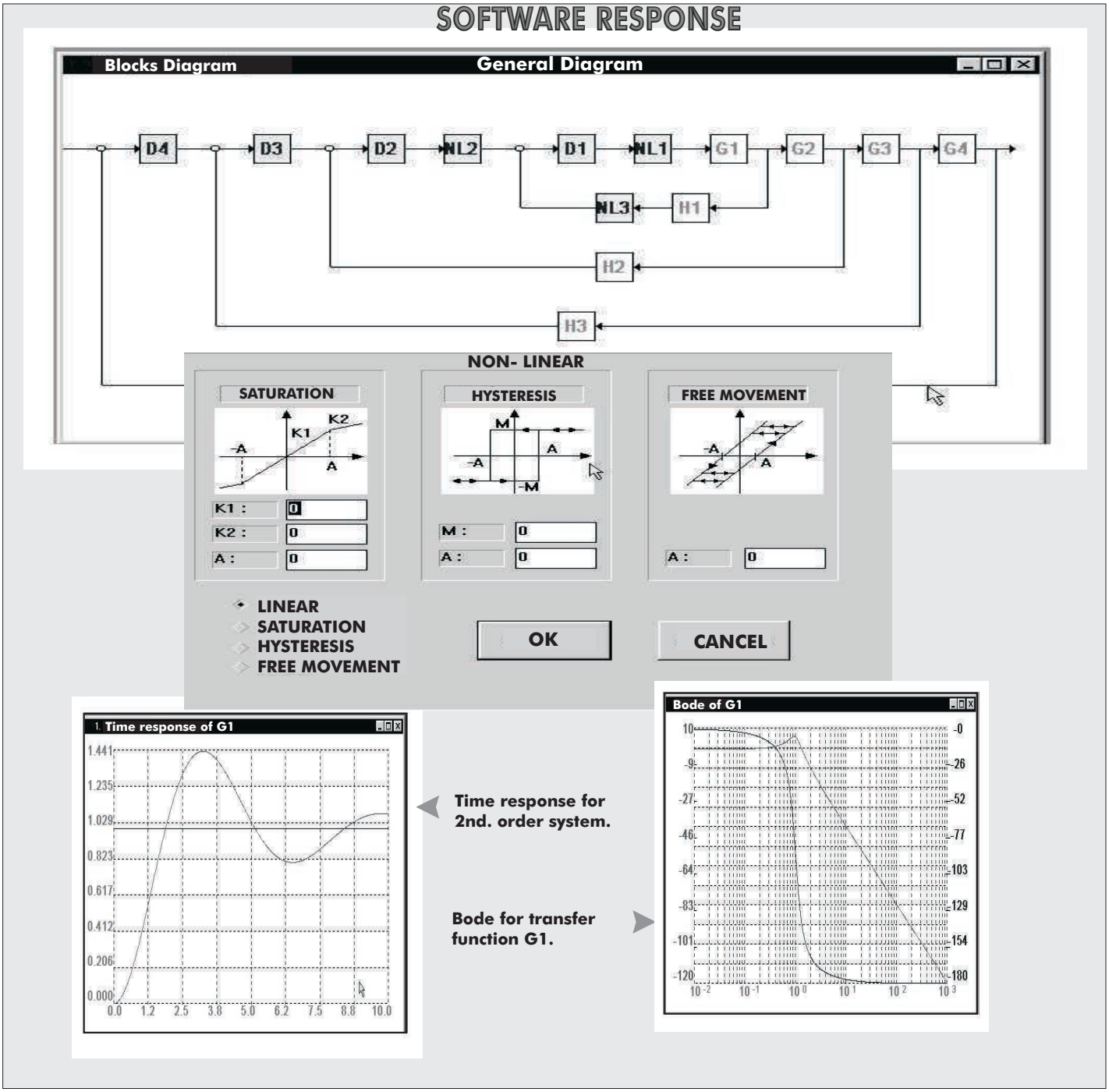
EDIBON, S.A.

Regulation and Control Simulation Software

RYC-SOF

SOFTWARE RESPONSE



INTRODUCTION

Many dynamic systems of mechanical, electrical, thermal, hydraulic, biological and economic type, etc., can be characterized by Regulation and Control Systems.

The **"RYC/SOF" Regulation and Control Simulation Software** allows the user to simulate a wide range of systems with different degrees of complexity, providing a more in-depth understanding of the systems analysed.

This Simulation Software is a very helpful tool, since it allows the user to learn about and to simulate the behaviour of highly complicated systems, for open or close loop, with a computer (PC).

DESCRIPTION

The operating system for the **"RYC/SOF"** software is Windows.

This simulator permits the easy entering of the system to be studied and the subsequent excitation of the input signal (with a wide range of possibilities), displaying in a window the transient response of the output and the different intermediate signals, as well as Bode diagrams for the system; permitting an in-depth analysis of the simulated system.

The fast entering of the plant to be simulated allows the simple modification of its parameters.

DEMO DISK AVAILABLE

PRACTICAL POSSIBILITIES

- **First order linear systems:**
  * Time response to an input of unit step, unit ramp and a sine signal.
  * Frequency response.
- **Second order linear systems:**
  * Time response to input of unit step, unit ramp and a sine signal.
  * Frequency response.
- **Third order linear systems or higher:**
  * Time response to unit step of a system of third order or higher.
  * Time and frequency response to a sine input
- **Systems with delay time or idle time:**
  * Time response of systems with delay time.
  * Frequency response of the delay time.
- **Design of PID regulators using the Quantitative Optimum criterion.**
  * PID Regulators.
  * Optimization criteria.
  * Regulation in Cascade .
  * Example for analog performance of regulators.
- **First and second order linear plants in close loop regulated by means of the Quantitative Optimum criterion.**
- **Non-linear systems:**
  * Time and frequency response.
- **Identification of systems:**
  * Direct methods: time domain of the frequency and by means of weighting function.
  * Identification by least squares: normal model, recursive and extended version.
  * Frequency response of identified systems: for Z-transfer function and identified system.
- **Non-linear system before a linear plant**.
- **Design of variable structure regulators.**
  * Regulators in sliding mode.
- **Second and third order linear systems in closed loop with a regulator in sliding mode.**
- **Multiloop System, regulated by means of different control strategies:**
  * Two quantitatively optimized loops.
  * Internal loop in sliding mode and external loop quantitatively optimized.
  * Two loops controlled in sliding mode.

SPECIFICATIONS

- The "RYC/SOF" Regulation and Control Simulation Software is supplied in **English language**.
- **Ready for installation** by means of floppy disk in computer (PC) 486 or higher, **and immediate operation**.
- Operating system **Windows**.
- **Easy data introduction**.
- Works with individual transfer functions of order three and with the possibility of obtaining a superior order by chaining several transfer functions together in cascade.
- Possibilty of introduction of non-linear elements. This gives to the simulation more realism, since in practice, most loads have some alinear characteristc such as salurations, hysteresis, etc.
- Includes the regulation theory in Sliding mode.
- Use of identification tool to recognize loads.
- Visualization of the temporary answers of any of the block diagrams and some block associations.
- Visualization of Bode diagrams of Gotg linear and alinear blocks.
- **Theory, Practical and Operation Manual in English**.

POSSIBLE EXTENSIONS

- This software is perfectly complemented by the **Regulation and Control Equipment, with control from computer(PC), in real time. "RYC"**; with physical and real practice application.
- Configuration of a Laboratory of Regulation and Control **for 20 student posts, working sumultaneously** :
  * Complete Hardware Equipment "RYC".
  * "RYC/SOF" Simulation Software for 20 student posts, working simultaneously.

* Specifications subject to change without previous notice, due to the continuous improvements of the product

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TEACHING EQUIPMENTS

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