edibon

Engineering and Technical Teaching Equipment

Unit: AE-BR. Robotic Arm Station

Robotic Arm programming software

Computer
(not included in the supply)

Key features:

➤ **Robotic Arm programming software.**

➤ **Robotic Arm control console.**

➤ **Projector and/or electronic whiteboard compatibility allows the unit to be explained and demonstrated to an entire class at one time.**

➤ **Suitable for applied research, real industrial simulation, training courses, etc.**

➤ **Totally safe, using three safety systems (mechanical, electrical and electronic).**

➤ **Designed and manufactured under several quality standards.**

➤ **Optional ICAI software to create, edit and carry out practical exercises, tests, exams, calculations, etc., apart from supervising the knowledge and progress achieved by the user.**

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➡PRODUCTS
➡60.- MECHATRONICS & COMPUMECHATRONICS

For more information about Key Features, click here

INTRODUCTION

Since the 1950s, the computer integration in the manufacturing systems has been a complete revolution, increasing productivity and quality of all type of products. These computer integration systems include a lot of components from very different technologies as hydraulic, pneumatic, electrical, robotics, chemical, etc. For this reason, these type of systems requires high skilled workers to ensure that they are working properly. The robotic arms make several functions in the industry today: pick and place, welding, pieces feeding, storing, etc. That is why the robotic arms are one of the main components in the computer integrated systems.

The Robotic Arm Workstation, "AE-BR", has been designed by EDIBON to study the possibilities of a programmable six degree of freedom robotic arm. The "AE-BR" also includes an electric drill and a pneumatic double acting gripper, which can be installed in the robotic arm.

The "AE-BR" workstation includes a set of practical exercises through which the student will understand how to program different movements and functions in the robotic arm.

GENERAL DESCRIPTION

The "AE-BR" is a Robotic Arm Workstation with the programming console included. The Robotic Arm can command the pneumatic gripper or the electrical driller installed in it.

The "AE-BR" workstation is able to perform a lot of functions including: pick and place, storing, pieces feeder, pieces manipulator, mounting, etc.

The "AE-BR" workstation is designed as a modular system to facilitate the understanding of the unit. The main components are:

- The control panel: with start/stop button, emergency pushbutton, reset button, light indicators to show current state of the process, etc.

- The pneumatic circuit: contains the required solenoid valves, filters and regulators to assure the correct working and safety of the unit.

- The workstation: is composed by real industrial components used by the industrial robotic arm system such as six-axis industrial robot, programming console, pneumatic gripper, electrical driller, etc.

The "AE-BR" is an independent workstation that can work alone and/or in conjunction with other workstations to make up a complete Flexible Manufacturing system*.

*The Flexible manufacturing systems product list is available at "Flexible Manufacturing Systems (FMS)" area of the general catalogue.

SPECIFICATIONS

Mounted with aluminum profiles.

10 pieces made of aluminum.

Control panel:

    Mushroom head emergency stop push button switch.

    Start and Stop pushbuttons.

    Switch for manual or automatic operation.

    Light indicator.

    Led stack light.

    Terminal block to connect the individually identified inputs and outputs of the unit.

Robotic arm:

    6 degrees of freedom.

    Maximum load capacity: 2 Kg.

    Weight: 19 Kg.

    Position repeatability: ±0.02 mm.

    Detection method: absolute encoder.

    Arm length: 500 mm max.

    Console to program the robotic arm.

    Electric drill to install in the robotic arm.

    Pneumatic double acting gripper to install in the robotic arm.

Pneumatic circuit:

    Air treatment unit:

        Filter-regulator with water trap.

        Manometer with double scale indicator.

        Shut-off valve.

Recommended accessories: (Not included)

• AE-PLC-MA. **Multiple Pieces Feeder Workstation (optional).**

   Mounted with aluminum profiles.

   30 pieces made of aluminum and plastic of different colors.

   Vertical storage for pieces.

   Pneumatic circuit.

   Sensors.

   Fault generation module.

• AE-CP. **Air compressor module (optional).**

   Low noise level: 40 dB maximum.

   Capacity of the boiler: 9 l.

   Power: 340 W.

   Air intake: 50 l/min.

   Maximum pressure: 8 bar or 0.8 MPa.

   It Includes hoses to easy connect with the EDIBON units.

Cables and Accessories, for normal operation.

Manuals: This unit is supplied with the following manuals: Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manuals.

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Introduction to flexible manufacturing system (FMS).

2.- Introduction to robotic systems.

3.- Robotic arm configuration.

4.- Set a simple movement of the robotic arm.

5.- Introduction to pneumatics and electro-pneumatics.

6.- Configuration of a pneumatic application.

7.- Set a simple pick and place function with the robotic arm.

8.- Configuration of the robotic arm as a pick and place system (AE-PLC-MA).

9.- Change the parameters of the pick and place process (AE-PLC-MA).

10.-Optimize the pick and place process (AE-PLC-MA).

11.-Configuration of the robotic arm as a mounting system (AE-PLC-MA).

12.-Change the parameters of the mounting process (AE-PLC-MA).

13.-Optimize the mounting process (AE-PLC-MA).

REQUIRED SERVICES

- Electrical supply: single-phase, 220V/50 Hz or 110V/60 Hz.
- Computer.
- PLC unit with at least 16 D.I. and 16 D.O.
- Compressed air with a 50 l/min of air flow and 8 bar of pressure.

DIMENSIONS AND WEIGHTS

AE-BR:

-Dimensions: 600 x 800 x 1600 mm approx.

(23.62 x 31.49 x 62.99 inches approx.)

-Weight: 80 Kg approx.

(176 pounds approx.)

RECOMMENDED ACCESSORIES (Not included)

- AE-PLC-MA. Air Compressor Module (optional).
- AE-CP. Air compressor module (optional).

AE-BR/ICAI. Interactive Computer Aided Instruction Software System:
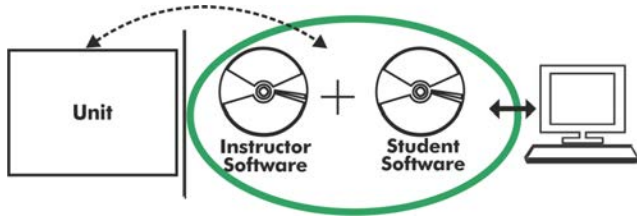
With no physical connection between unit and computer (PC), **this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF)**. Both are interconnected so that the teacher knows at any moment what is the theoretical and practical knowledge of the students.
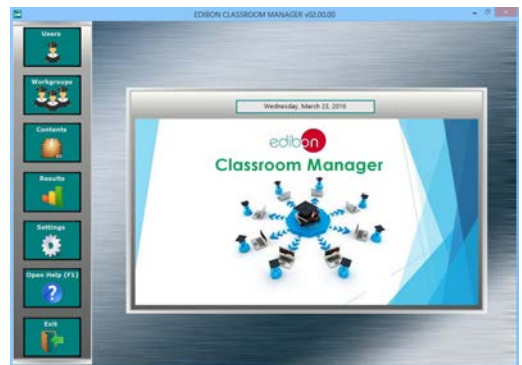
Instructor Software

### - ECM-SOF. EDIBON Classroom Manager (Instructor Software).

ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual students, workgroups, units, etc... so the teacher can know in real time the level of understanding of any student in the classroom.

Innovative features:

• User Data Base Management.

• Administration and assignment of Workgroup, Task and Training sessions.

• Creation and Integration of Practical Exercises and Multimedia Resources.

• Custom Design of Evaluation Methods.

• Creation and assignment of Formulas & Equations.

• Equation System Solver Engine.

• Updatable Contents.

• Report generation, User Progression Monitoring and Statistics.

ECM-SOF. EDIBON Classroom Manager (Instructor Software)
Application Main Screen
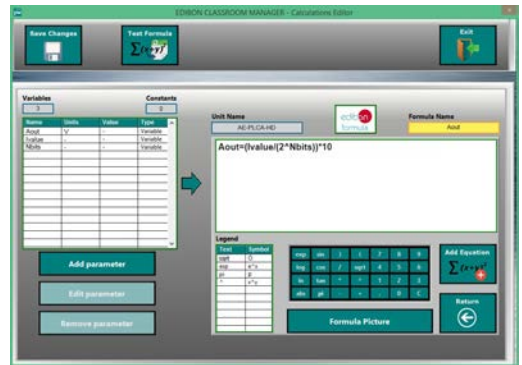
ECAL. EDIBON Calculations Program Package - Formula Editor
Screen
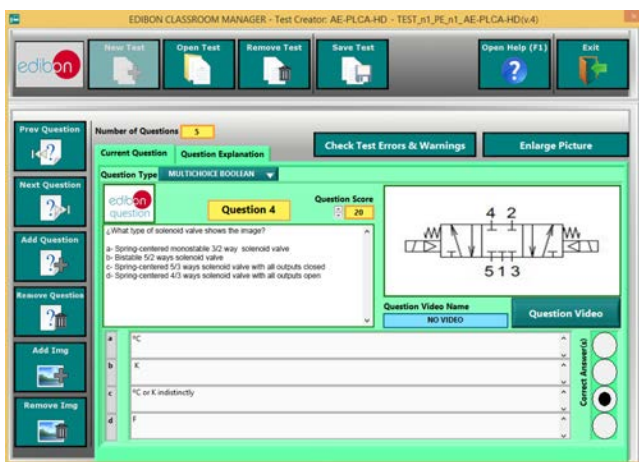
ETTE. EDIBON Training Test & Exam Program Package - Main Screen with
Numeric Result Question

ERS. EDIBON Results & Statistics Program Package - Student
Scores Histogram

- ESL-SOF. EDIBON Student Labsoft (Student Software).

ESL-SOF is the application addressed to the Students that helps them to understand theoretical concepts by means of practical exercises and to prove their knowledge and progression by performing tests and calculations in addition to Multimedia Resources. Default planned tasks and an Open workgroup are provided by EDIBON to allow the students start working from the first session. Reports and statistics are available to know their progression at any time, as well as explanations for every exercise to reinforce the theoretically acquired technical knowledge.

Innovative features:

- Student Log-In & Self-Registration.

- Existing Tasks checking & Monitoring.

- Default contents & scheduled tasks available to be used from the first session.

- Practical Exercises accomplishment by following the Manual provided by EDIBON.

- Evaluation Methods to prove your knowledge and progression.

- Test self-correction.

- Calculations computing and plotting.

- Equation System Solver Engine.

- User Monitoring Learning & Printable Reports.

- Multimedia-Supported auxiliary resources.

ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen

For more information see **ICAI** catalogue. Click on the following link:
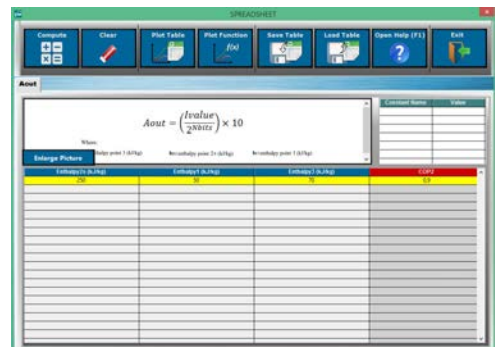
www.edibon.com/en/files/expansion/ICAI/catalog

EPE. EDIBON Practical Exercise Program Package Main Screen
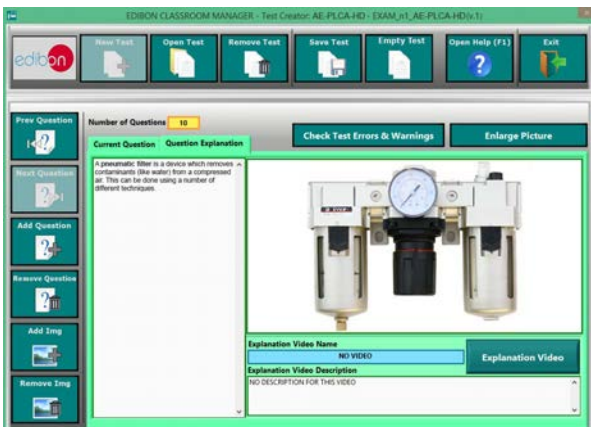
ERS. EDIBON Results & Statistics Program Package - Question Explanation

ECAL. EDIBON Calculations Program Package Main Screen

✱ Specifications subject to change without previous notice, due to the convenience of improvement of the product.

REPRESENTATIVE: