



## INTRODUCTION

Automotive electronics is the branch of mechatronics focused on the electrical and electronic equipment installed in cars. The importance of electronic systems in cars has been increasing year by year till reaching one of the main parts of the automobiles today.

The electronic systems have replaced a lot of functions performed manually or by mechanical systems, like the fuel injection system, the control of emission gases, the safety system, the checking of the car liquids, the comfort system, the throttle control and a long etcetera.

The Automotive Wiper Washer Unit, "AV-WW", has been designed by EDIBON to study the electronic components, sensors and actuators related to the wiper and washer systems used in the automotive field.

## GENERAL DESCRIPTION

The Automotive Wiper Washer Unit, "AV-WW", provides a practical solution to the introduction of the components of the wiper and washer system used in the automotive field today.

The components included in the "AV-WW" are focused on different functions, such as the windshield wiper motor mechanism, the rear wiper motor mechanism, the washer liquid circuit, the wiper and washer control switch, etc.

The "AV-WW" unit is provided with a different set of practical exercises, through which the student will understand how the components used in wiper and washer systems work.



ISO 9001: Quality Management (for Design, Manufacturing, Commercialization and After-sales service)



European Union Certificate (total safety)



Certificates ISO 14001 and ECO-Management and Audit Scheme (environmental management)



"Worlddidac Quality Charter" and Platinum Member of Worlddidac

## SPECIFICATIONS

The "AV-WW" unit is mounted on a metallic frame.

The "AV-WW" components are divided into the following groups:

Power supply components:

Power supply.

Car ignition switch.

Washing water tank components:

Three liter tank.

Wiper and washer tank level switch.

Control components:

Electronic control unit.

Rain sensor.

Wiper and washer control switch.

Fuses and relays box:

Car GEM module.

Operating voltage: 12V DC.

Lights indicators:

Power on indicator.

Wiper and washer tank level indicator.

Actuator components:

Washing water pump.

Windshield wiper motor.

Windshield wiper motor transmission and linkage.

Rear wiper motor.

Rear wiper motor transmission and linkage.

Windshield washer nozzles.

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.- Wiper and washer control switch positions and operation modes.
  - 2.- Windshield wiper motor transmission and linkage operation.
  - 3.- Rear wiper motor transmission and linkage operation.
  - 4.- Washer liquid circuit of the windshield and rear wiper and washer system.
  - 5.- Different operation modes of the wiper and washer system.
  - 6.- Automatic activation of the wipers with rain sensor.
- Several other exercises can be done and designed by the user.

### REQUIRED SERVICES

- Electrical supply: single-phase, 220 V/50 Hz or 110 V/60 Hz.

### DIMENSIONS AND WEIGHTS

AV-WW:

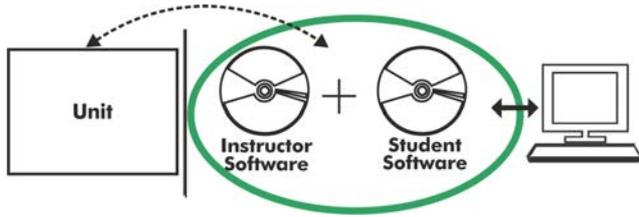
-Dimensions: 800 x 500 x 600 mm approx.

(31.49 x 19.68 x 23.62 inches approx.)

-Weight: 28 Kg approx.

(61 pounds approx.)

**AV-WW/ICAI. Interactive Computer Aided Instruction Software System:**



With no physical connection between unit and computer, 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:

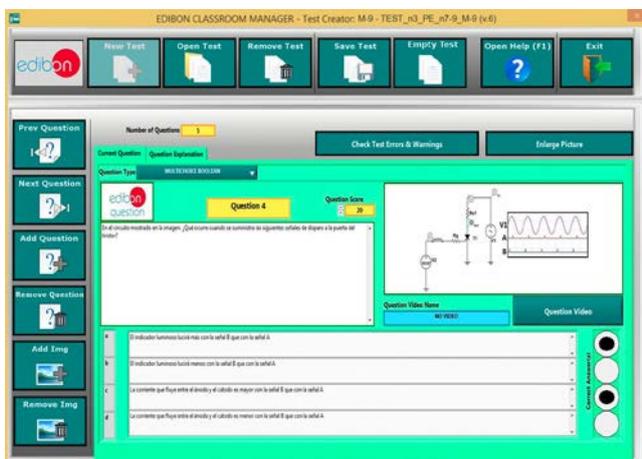
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.
- 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

Optional  
Student Software

- **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:

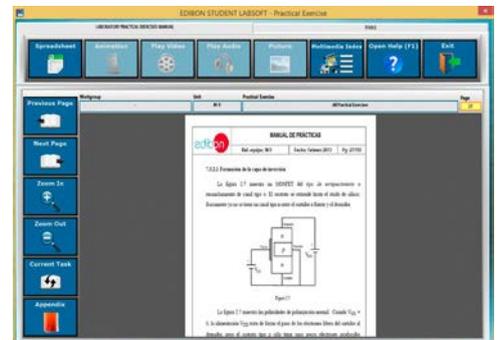
- **Student Log-In & Self-Registration.**
- **Existing Tasks checking & Monitoring.**
- **Default contents & scheduled tasks available to be used from the first session.**
- **Practical Exercises accomplishment by following the Manual provided by EDIBON.**
- **Evaluation Methods to prove your knowledge and progression.**
- **Test self-correction.**
- **Calculations computing and plotting.**
- **Equation System Solver Engine.**
- **User Monitoring Learning & Printable Reports.**
- **Multimedia-Supported auxiliary resources.**

For more information see ICAI catalogue. Click on the following link:

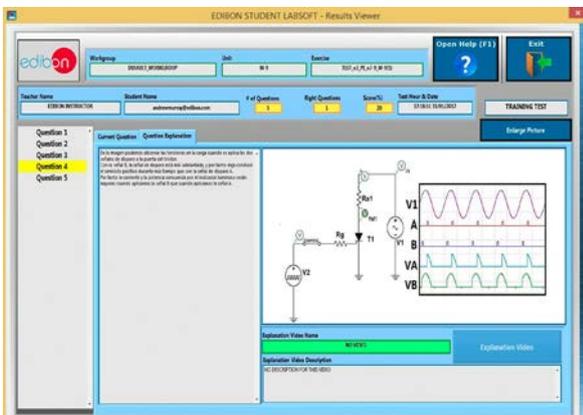
[www.edibon.com/en/files/expansion/ICAI/catalog](http://www.edibon.com/en/files/expansion/ICAI/catalog)



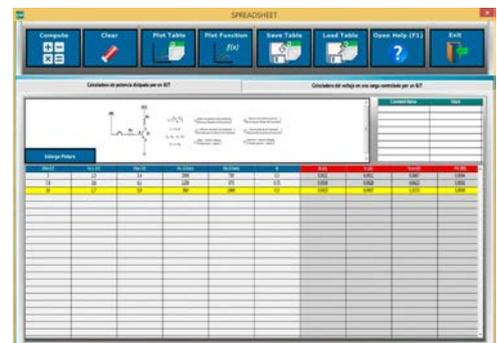
ESL-SOF. EDIBON Student LabSoft (Student Software)  
Application Main Screen



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.



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REPRESENTATIVE:

