Guyline (Asia) Ltd.

Between Academic & Industry - The Practical Approach

GUYLINE (ASIA) LIMITED

Edibon - Academic and Industrial Education - Spain

EDIBON designs and manufactures equipment for technical education and research, as well as pilot plants by integrating cutting-edge technology with innovative solutions to advance training and scientific development.

By filling the "**Gap between Academics and Industrial Requirement**", Edibon offers around 4,000 pieces of teaching equipment and pilot plants across 14 technical fields of technical education and research. It had provided tools for learning, experimentation, and process optimization for about 50 years!.

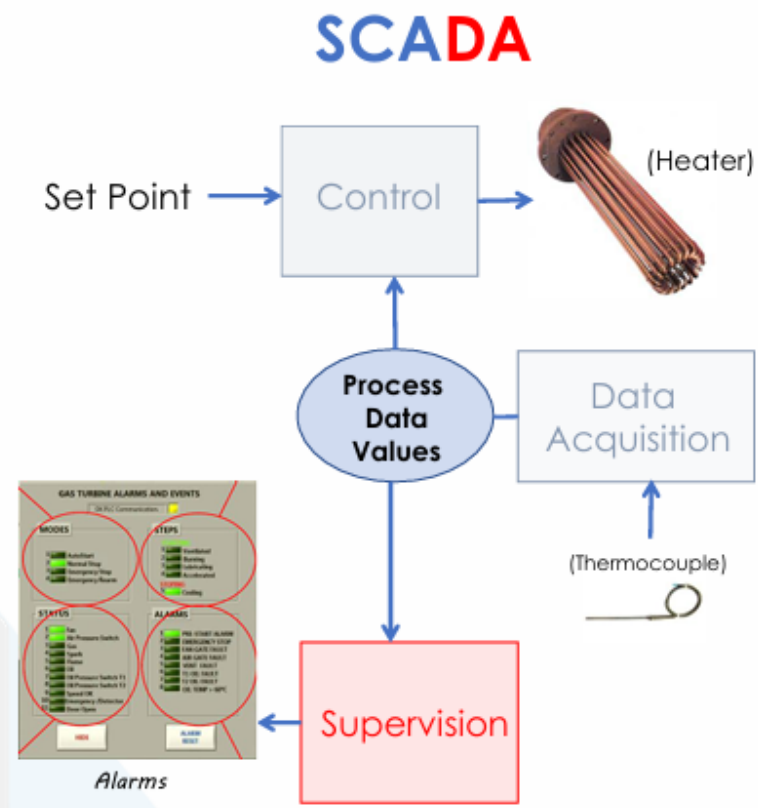
Edibon's commitment is to deliver high-quality solutions to educational institutions, research centers, and industrial sectors with ensuring precision, efficiency, and excellence in every project.

EDIBON's equipment integrity, scalability and adaptability:
4,000 Technical Teaching Units + 5,000 different configurations.

AREAS

- 10. Physics
- 20. Electronics
- 30. Communications
- 40. Electricity
- 50. Energy
- 60. Mechatronics & Compumechatronics
- 70. Mechanics
- 80. Fluid Mechanics
- 90. Thermodynamics & Thermotechnics
- 100. Process Control
- 110. Chemical Engineering
- 120. Food & Water Technologies
- 130. Environment
- 140. Biomedical Engineering

EDIBON SOLUTION	SCADA CONTROL SYSTEM as used in the
INCONVENIENCE	Teachers may need training for SCADA SCADA CONTROL SYSTEMS. EDIBON can train them.
UNITS AVAILABILITY	Most of the units in stock.



Application Areas: Technical Teaching Equipment is all SCADA based

CONTRIBUTION TO DEVELOPMENT

- Patented designs with our own teaching techniques, such as SCADA, SCADA-NET (ESN), EDIBON Cloud Learning (ECL), etc.
- About 4,000 different Teaching Units and Systems in 14 technical education areas.
- Research, Development and Innovation to achieve excellence in education, with advanced sustainable solutions and an efficient cost.
- Full capability for complete laboratories design and complete Training Centres.

SOME OF OUR CLIENTS AND PARTNERS

HARVARD UNIVERSITY
SINGAPORE INSTITUTE OF TECHNOLOGY
Massachusetts Institute of Technology
EPFL ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE
CHARLES DARWIN UNIVERSITY
CUNY

Some of our Achievements

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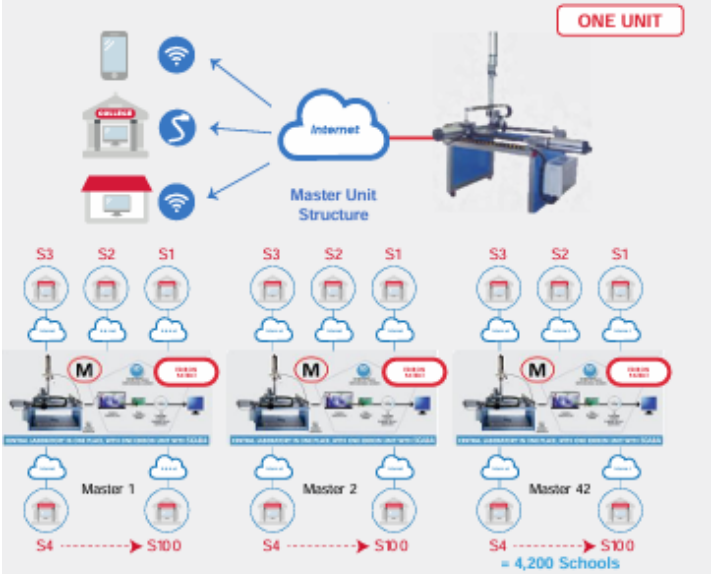
Example: Secondary Education
End Customer: Tamil Nadu Government (India)

EDIBON Cloud Learning (ECL) for Secondary Education

ONE UNIT



Complete System
M: 42 Master Schools.
S: 100 Satellite Schools for any Master School.
4,200 Satellite Schools.

Comparative COSTS
- **One school** estimated to be equiped = 50,000€
  4200 schools × 50,000€/school= 210M€
- **Cost using ECL**
  42 Master schools × 100,000€/Master School= 4,2M€

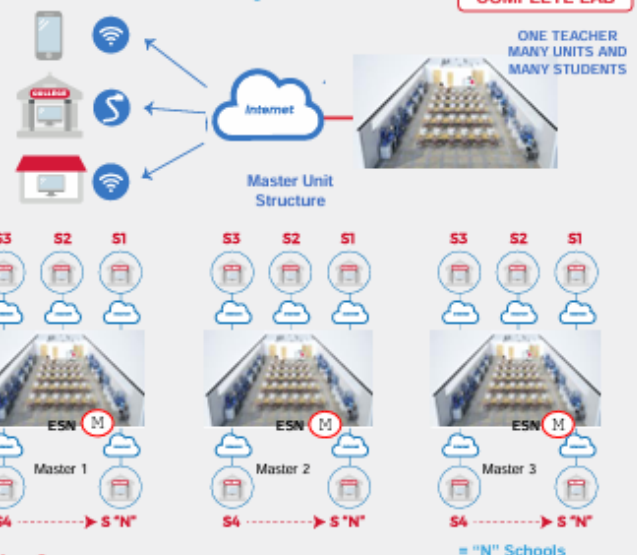
210M€
4,2M€=50

THE ECL COST IS 50 TO 100 TIMES LOWER

Example: Higher, Technical and Vocational Educations
End Customer: Government of Kyrgyzstan

EDIBON Cloud Learning (ECL) for Higher, Technical and Vocational Educations based on ESN System

COMPLETE LAB



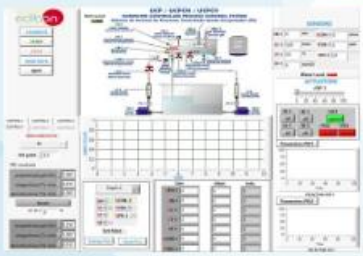
Complete System
M: 3 Complete Master Laboratories. Several units with SCADA in any Master Laboratory.
S: "N" Satellite Training Centers in the country. Any student can use the system from home.

Comparative COSTS
- **Complete Master Laboratory** = 50M€
- **3 Complete Master Laboratory** = 150M€
- **ECL System for all units** = 150M€

The ECL + ESN cost AT LEAST 60 TO 100 TIMES LOWER depending the number of satellite schools.

SCADA Platform could be further Expanded and Enhanced

PLC – Programmable Logical Controller. Real Industrial System



PLC Additional practices:

- 1.- Control of the unit process through the control interface box without the computer.
- 2.- Visualization of all the sensors values used in the unit process.
- 3.- Calibration of all sensors included in the unit process.
- 4.- Hand on of all the actuators involved in the unit process.
- 5.- Realization of different experiments, in automatic way, without having in front the unit. (This experiment can be decided previously).
- 6.- Simulation of outside actions, in the cases hardware elements do not exist. (Example: test of complementary tanks, complementary industrial environment to the process to be studied, etc.).
- 7.- PLC hardware general use and manipulation.
- 8.- PLC process application for the unit.
- 9.- PLC structure.
- 10.- PLC inputs and outputs configuration.
- 11.- PLC configuration possibilities.
- 12.- PLC program languages.
- 13.- PLC different programming standard languages.
- 14.- New configuration and development of new process.
- 15.- Hand on an established process.
- 16.- To visualize and see the results and to make comparisons with the unit process.
- 17.- Possibility of creating new process in relation with the unit.
- 18.- PLC Programming exercises.
- 19.- Own PLC applications in accordance with teacher and student requirements.

Teaching advantages:

- The student can work at SCADA mode and/or PLC mode.
- Many processes in Industry use SCADA + PLC.
- Quick and clear use of SCADA + PLC.

One of the Examples

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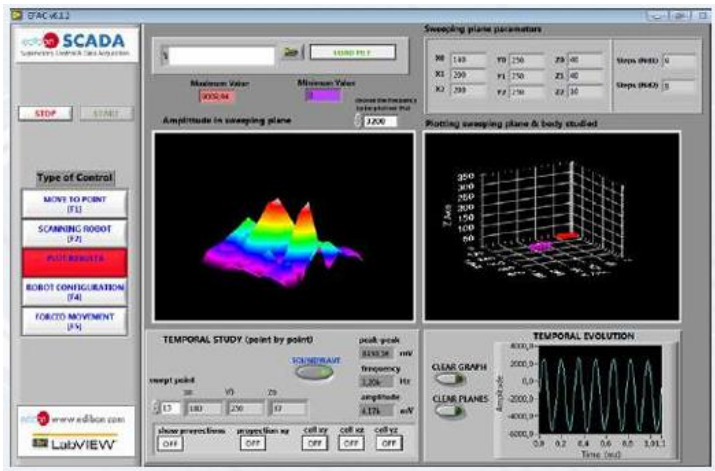
FUB. Base Frame and Robot for EFAC

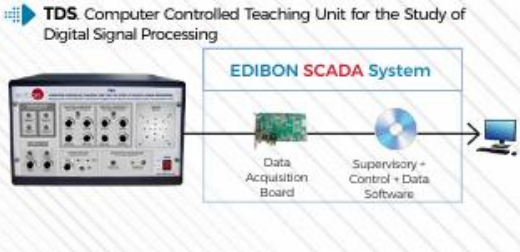


Physics – 3D Measurements

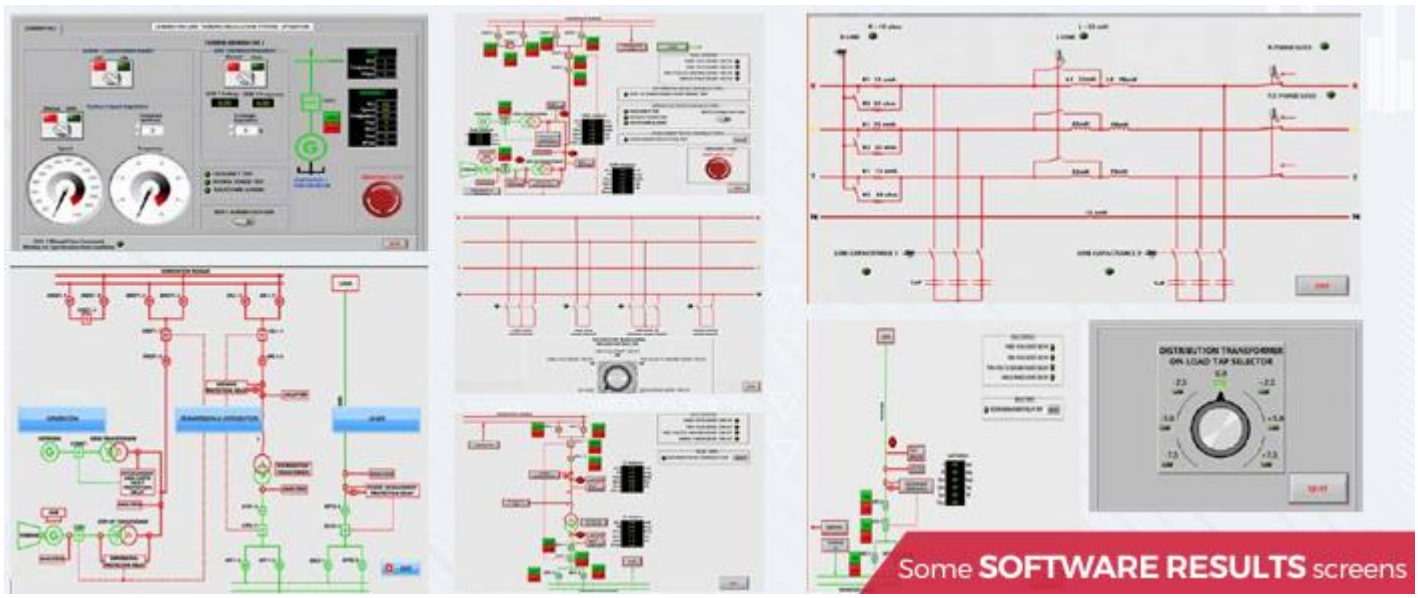
Electronics (Some of the Solutions offered)

Complete Configuration Example (Power Supplies & Measurement)

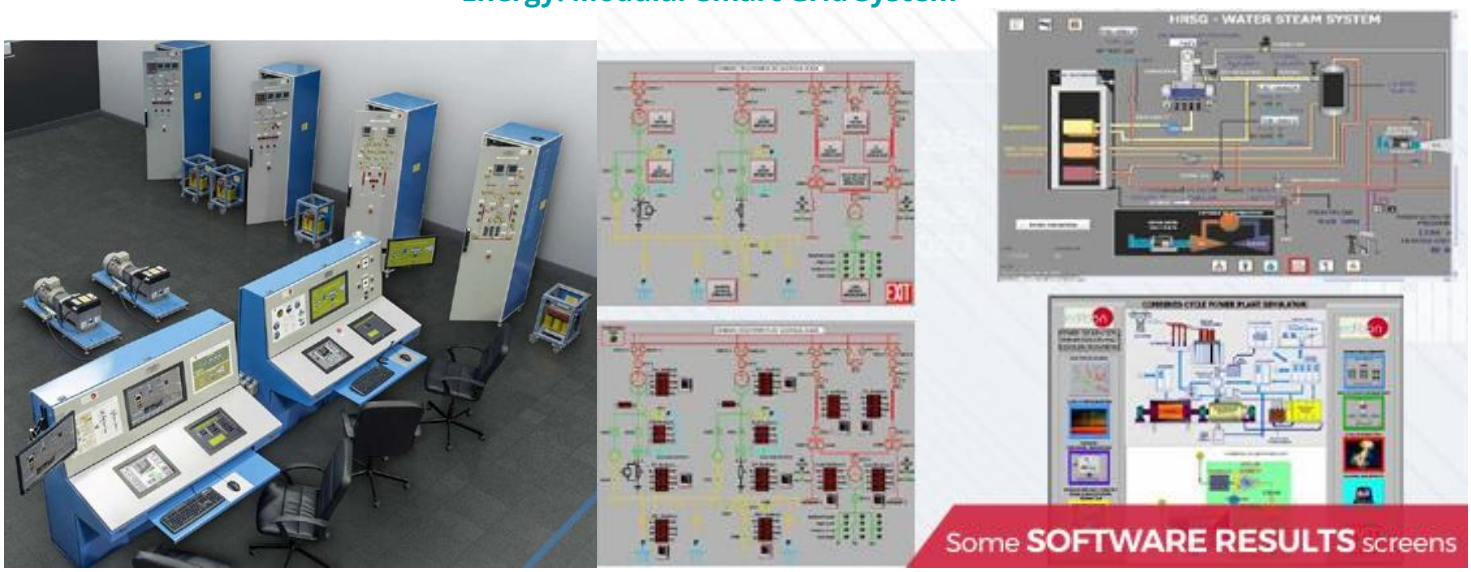
Electrical Machines Lab



Teaching Tools for Coding, Modulation & Signal Processing Theory



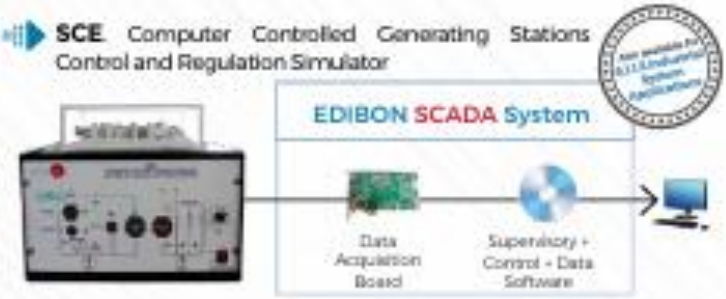
Energy: Modular Smart Grid System



Energy: Advanced Electro-Mechanical & Smart Grid Power System Lab

RYC/B. Basic Teaching Unit for the Study of Regulation and Control

SCE. Computer Controlled Generating Stations Control and Regulation Simulator



6.1.1.2. INDUSTRIAL CONTROLLERS

CECI. Industrial Controllers Unit

CRCI. Industrial Controllers Networking

CEAC. Computer Controlled Controller Tuning Unit

CEAB. Field Bus Applications Unit

6.1.1.3. INDUSTRIAL SYSTEM APPLICATIONS

CTAC. Computer Controlled Coupled Tanks System

UCP. Computer Controlled Process Control (Electronic Valve)

BS9. Pneumatic Test Module

BS10. Light Test Module

Some **SOFTWARE RESULTS** screens

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Mechanics

Fluid Mechanics Lab (Wind Tunnel, Fluid properties. Aerodynamic)

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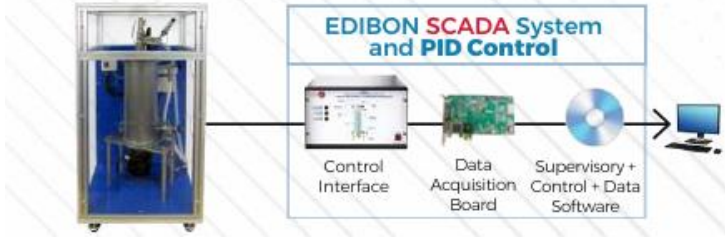
TVCC. Computer Controlled Combustion Laboratory Unit

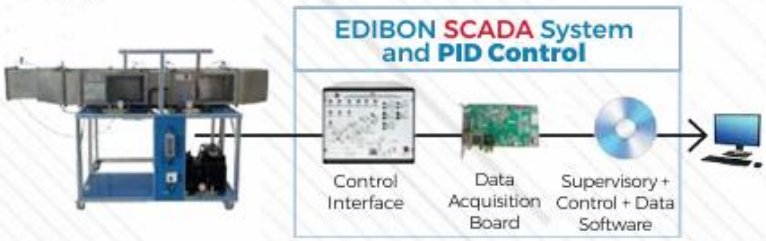
TECMC. Computer Controlled Marcet Boiler Unit



TVPLC. Computer Controlled Flame Propagation and Stability Unit

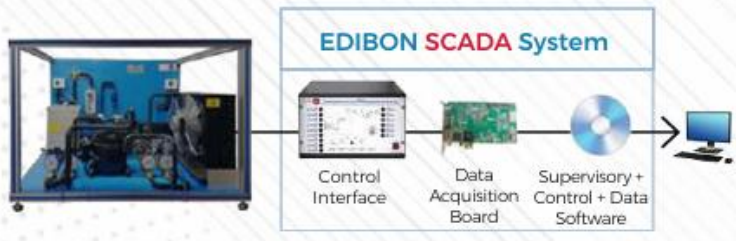
HFCC. Computer Controlled Flow of Compressible Fluids Unit

TARC. Computer Controlled Recirculating Air Conditioning Unit

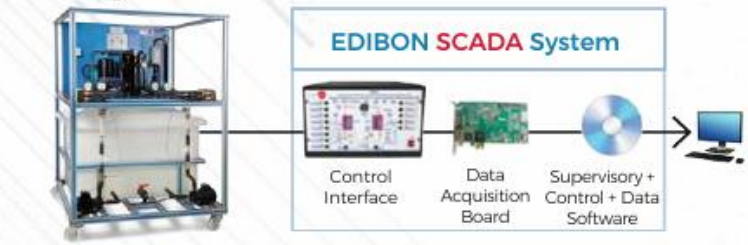


TEHSC. Computer Controlled Unit to Study the Efficiency of a Heating System

TRCAC. Computer Controlled Refrigeration Circuit with Variable Load



TRCVC. Computer Controlled Vapour-Compression Refrigeration Unit



TCPISC. Computer Controlled Cooling Plant with Ice Store

TCREV. Compression Refrigeration Unit with Different Expansion Valves

Thermodynamics & Thermo-technics

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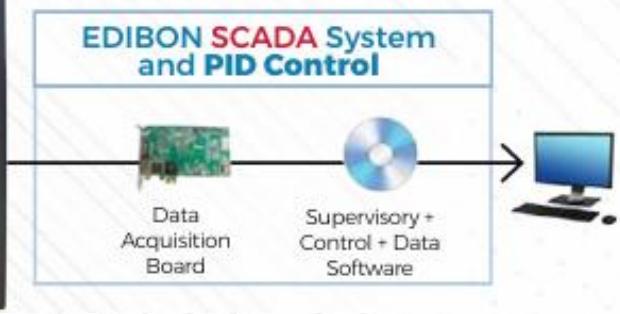
RYC/T. Computer Controlled Modular Control and Regulation Unit



RYC-CLM. Magnetic Levitation Control Module

RYC-TAG. Water Flow Temperature Control Module

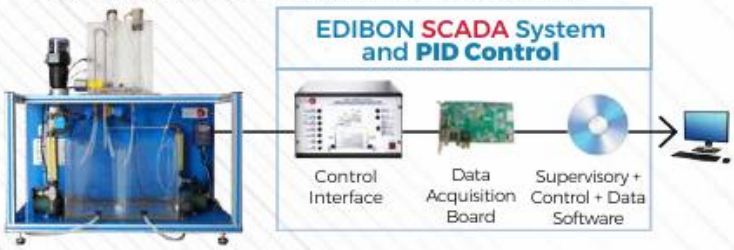
RYC-TE. Temperature Control Module

RYC-P. Pressure Control Module

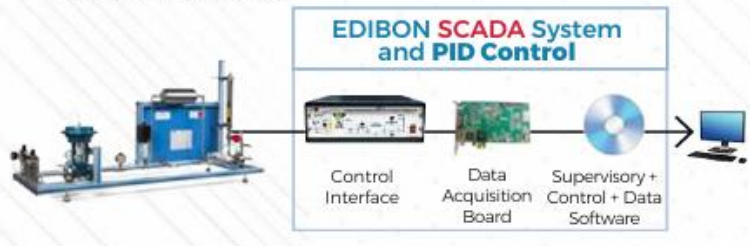
APC. Applications for Process Control

FLPTU. Flow, Level, Pressure and Temperature Regulation for Process Control

UCPCNCV. Computer Controlled Process Control Unit (Electronic + Pneumatic Valve and Speed Controller)



UCP-P. Computer Controlled Process Control Unit for the Study of Pressure (Air)



UCPCN. Computer Controlled Process Control (Pneumatic Valve)

UCPCV. Computer Controlled Process Control (Speed Controller)

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LFFC. Computer Controlled Fixed and Fluidized Bed Unit

EDIBON SCADA System

Control Interface | Data Acquisition Board | Supervisory + Control + Data Software

TTLFC. Computer Controlled Fluidization and Fluid Bed Heat Transfer Unit

EDIBON SCADA System and PID Control

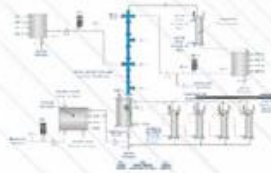
Control Interface | Data Acquisition Board | Supervisory + Control + Data Software

CSRD/4/CTS. Computer Controlled and Touch Screen 4 l/h Corrosive Solvent Recovery Distillation

EDIBON SCADA System

PLC interface + HMI control box and display | Supervisory + Control + Data Software

CSRD/12/CTS. Computer Controlled and Touch Screen 12 l/h Corrosive Solvent Recovery Distillation



EDIBON SCADA System

PLC interface + HMI control box and display | Supervisory + Control + Data Software

QDTLC. Computer Controlled Liquid Mass Transfer and Diffusion Unit

EDIBON SCADA System and PID Control

Control Interface | Data Acquisition Board | Supervisory + Control + Data Software

QDTGC. Computer Controlled Gaseous Mass Transfer and Diffusion Unit

EDIBON SCADA System and PID Control

Control Interface | Data Acquisition Board | Supervisory + Control + Data Software

CAGC. Computer Controlled Gas Absorption Column

EDIBON SCADA System and PID Control

Control Interface | Data Acquisition Board | Supervisory + Control + Data Software

CAPC. Computer Controlled Wetted Wall Gas Absorption Column

EDIBON SCADA System

Control Interface | Data Acquisition Board | Supervisory + Control + Data Software

FPCC. Computer Controlled Unit to Study Flow through Packed Columns

EDIBON SCADA System

Control Interface | Data Acquisition Board | Supervisory + Control + Data Software

PEAC. Computer Controlled Adsorption Unit

EDIBON SCADA System and PID Control

Control Interface | Data Acquisition Board | Supervisory + Control + Data Software

Some **SOFTWARE RESULTS** screens

Chemical Engineering

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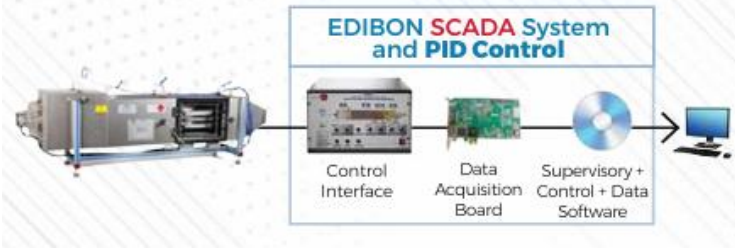
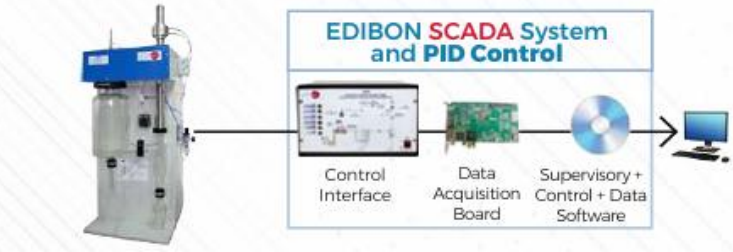
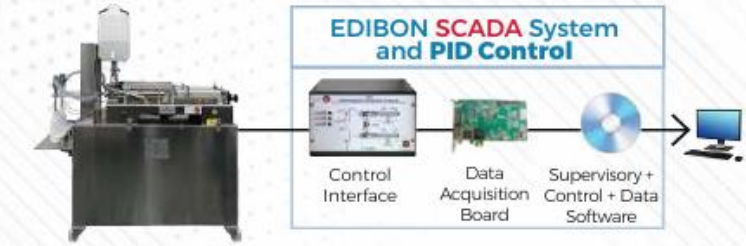
SBANC. Computer Controlled Tray Drier



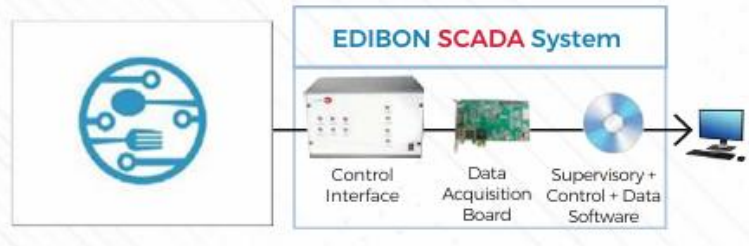
SSPC. Computer Controlled Spray Drier



EDLC. Computer Controlled Liquid Packaging Teaching Unit



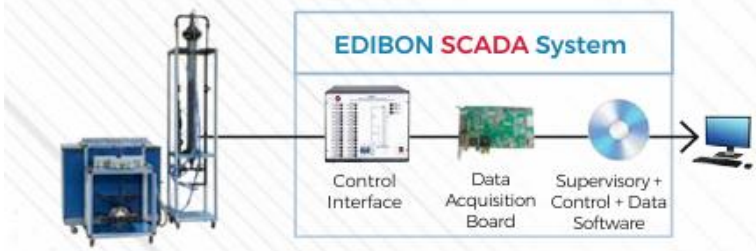
EDSC. Computer Controlled Solids Packaging Teaching Unit



DSNC. Computer Controlled Teaching Cream Separator

EMANC. Computer Controlled Butter Maker Teaching Unit

EFLPC. Computer Controlled Deep Bed Filter Unit



EIIC. Computer Controlled Ion Exchange Unit

PPTAC/1. Computer Controlled Water Treatment Plant 1

PPTAC/2. Computer Controlled Water Treatment Plant 2

Some **SOFTWARE RESULTS** screens

Food and Water Technologies

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GUYLINE (ASIA) LIMITED

ESHC(2x1m)/S. Computer Controlled Hydrologic Studies Unit

RHU. Rainfall Hydrographs Unit

RSESC. Computer Controlled Rainfall Simulator for Soil Erosion Studies

RFS. River Flow Simulator

HVFLM-2. Mobile Bed and Flow Visualization Unit (working section: 2000X610 mm)

HVFLM-4. Mobile Bed and Flow Visualization Unit (working section: 4000x610 mm)

EFAS. Ground Water Flow Unit

PAHSC. Computer Controlled Soil Moisture Suction Sand Unit

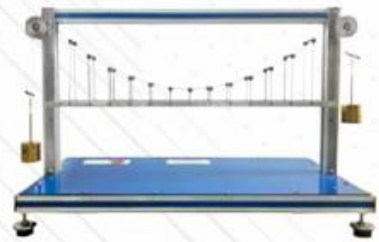
PDFDC. Computer Controlled Drainage and Seepage Tank

PTSA. Soil/Water Model Tank

GUYLINE (ASIA) LIMITED

MFPG. Unit for studying Forces in a Jib Crane

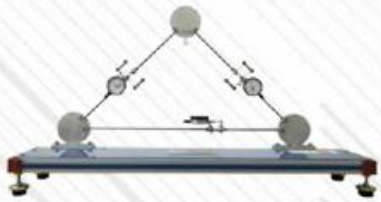
MVS. Suspension Bridge Unit



MARP. Parabolic Arch Unit

MART. Three-Hinged Arch Unit

MFBS. Unit for Studying Forces in a Simple Bar Structure



MFCS1. Unit for studying Forces in Different Single Plane Trusses

STH. Stress Hypotheses Unit

MEPE. Simple Stability Problems Study Unit

MDB. Deflection of Curved Bars Unit

MFV. Beam Deflection Unit

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GUYLINE (ASIA) LIMITED

SCS/60/CTS. Computer Controlled and Touch Screen 60 l Semicontinuous Centrifugal Separator

EDIBON SCADA System

PLC interface + HMI control box and display

Supervisory + Control + Data Software

SCS/1000/CTS. Computer Controlled and Touch Screen 1000 l Semicontinuous Centrifugal Separator

EDIBON SCADA System

PLC interface + HMI control box and display

Supervisory + Control + Data Software

PEFC. Computer Controlled Flocculation Test Unit

EDIBON SCADA System

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

PEAIC. Computer Controlled Aeration Unit

EDIBON SCADA System

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

PCCAC. Computer Controlled Water Quality Control Unit

EDIBON SCADA System and PID Control

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

SPFC. Computer Controlled Sedimentation, Precipitation and Flocculation Unit

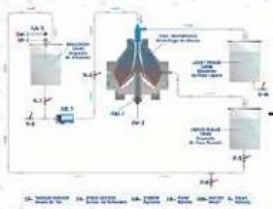
EDIBON SCADA System and PID Control

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

QCDIC. Computer Controlled Disc Centrifuge



EDIBON SCADA System

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

PPTAC/1. Computer Controlled Water Treatment Plant 1

EDIBON SCADA System

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

PPFAC. Computer Controlled Activated Sludge Process Unit

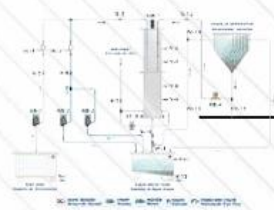
EDIBON SCADA System and PID Control

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

PPBC. Computer Controlled Biofilm Process Unit



EDIBON SCADA System

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

PSMC. Computer Controlled Magnetic Separation Unit

EDIBON SCADA System

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

PPTAC/2. Computer Controlled Water Treatment Plant 2

EDIBON SCADA System

Control Interface

Data Acquisition Board

Supervisory + Control + Data Software

Environment - Waste Water Treatment

Between Academic & Industry - The Practical Approach

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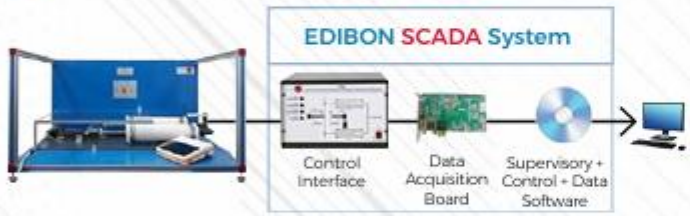
BIHBPC. Computer Controlled Biomedical Parameters and Biosignals Unit

BIPBSC. Computer Controlled Biomedical Patient Biosignals Simulation Unit

BISBC. Computer Controlled Biomedical Spirometry Unit



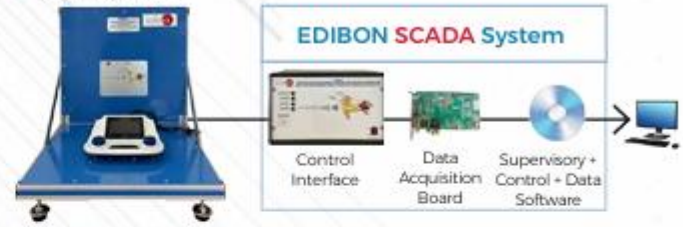
BICIR. Biomedical Electrosurgery Unit

BICSC. Computer Controlled Biomedical Circulatory System Unit

BIETC. Computer Controlled Biomedical Electrotherapy Unit

BIUTEC. Computer Controlled Biomedical Ultrasound Unit

BIADC. Computer Controlled Biomedical Diagnosis and Auditory Unit



BIMAG. Biomedical Magnetotherapy Unit

BIMTE. Thermal Effects of Microwaves in Biomedicine Unit

Between Academic & Industry - The Practical Approach

GUYLINE (ASIA) LIMITED

TPTV/20kW/CTS. Computer Controlled and Touch Screen 20 kW Steam Power Plant

The Computer Controlled and Touch Screen ***Steam Power*** Plant Adjustable up to 20 kW, "TPTV/20kW/CTS", converts thermal energy into mechanical energy and afterwards into electrical energy. It allows the students to understand the entire process and the basic components of a power plant (heat source to generate steam, a turbine with load and a refrigeration system to condense the steam).

TPTV/1.5kW/CTS. Computer Controlled and Touch Screen 1.5 kW Steam Power Plant

Some **SOFTWARE RESULTS** screens

The Computer Controlled and Touch Screen 1.5 kW ***Steam Power*** Plant, "TPTV/1.5kW/CTS", converts thermal energy into mechanical energy and then into electrical energy. The unit allows students to understand the complete process and the basic components of a thermal power plant (a heat source to generate steam, a turbine with load and a cooling system to condense the steam).

ACCR/250/CTS. Computer Controlled and Touch Screen 250 l Anti-Corrosive Circulation Reactor

The Computer Controlled and Touch Screen 250 l ***Anti-Corrosive Circulation Reactor***, "ACCR/250/CTS", is able to show, for further research and study, the fractionation of biomass into its three components of interest: high quality cellulose, hemicellulose and lignin, through the use of an organic solvent, called Gamma-Valerolactone (GVL). In addition, the unit has the main elements made of PTFE/PFA and coated with ECTFE (Halar) or Niflon, which allows the study of highly corrosive processes.

SCS/60/CTS. Computer Controlled and Touch Screen 60 l Semicontinuous Centrifugal Separator

Some **SOFTWARE RESULTS** screens

The Computer Controlled and Touch Screen 60 l Semicontinuous ***Centrifugal Separator***, "SCS/60/CTS", is able to show, for further research and study, the obtaining of lignin from lignocellulosic biomass.

Between Academic & Industry - The Practical Approach

GUYLINE (ASIA) LIMITED

LE00/Y. Pilot Plant for the Production of Yogurt

Milk

VPMC
Computer Controlled Multipurpose Processing Vessel

IYDC
Computer Controlled Teaching Yogurt Incubator

Yogurt

With the Pilot Plant for the ***Production of Yogurt***, "LE00/Y", designed by EDIBON, from pasteurized milk, we obtain and make the yogurt manufacturing process.

AEDC/A. Advanced Computer Controlled Deodorizing Unit

The Advanced Computer Controlled ***Deodorizing*** Unit, "AEDC/A", designed by EDIBON is a unit that allows the study and research of the continuous deodorization operation capable of performing a vacuum and high temperature distillation with steam.

EDIBON-MOF4AIR. Pilot Plant for CO_2 Adsorption Capture

HORIZON 2020

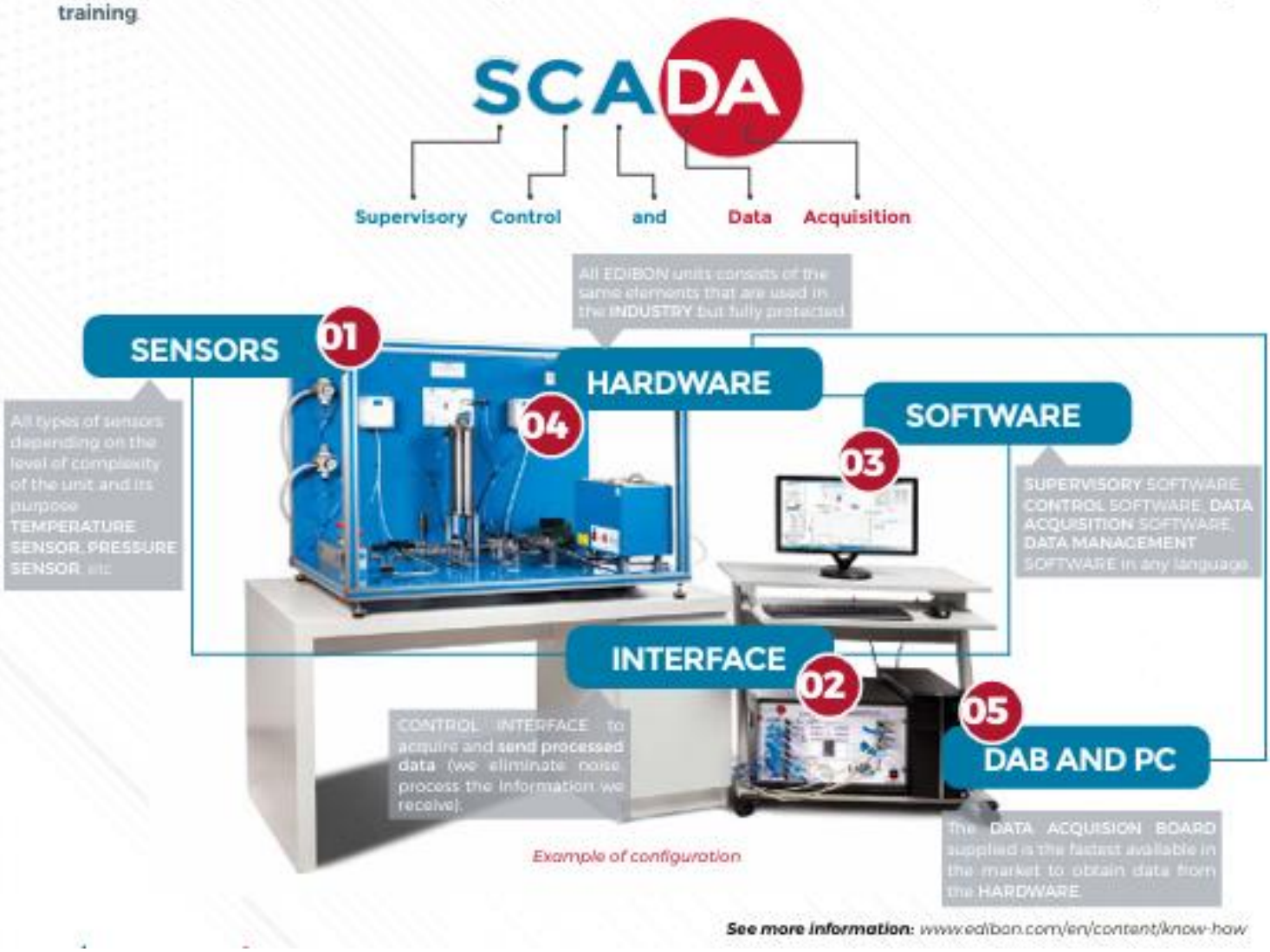
MOF4AIR

This project seeks a new solution to more efficiently ***capture carbon dioxide*** from power plants and industries. In order to address this significant challenge we currently face, the European Union launched the MOF4AIR research project to tackle the efficient capture of carbon dioxide in power plants and industries. At EDIBON, we have developed a solution that allows the testing of MOF-type materials for CO_2 capture in industrial environments.

GUYLINE (ASIA) LIMITED

KNOW-HOW

The basis of **EDIBON technology** is our "**SCADA**" system. This system can always be used in any part of the process whenever necessary.
It is a very widespread system in the industry and we are the only company in the world that has introduced it in our training and research units, offering thus **multiple advantages** to users.
Thanks to this computer-controlled technology, with our SCADA system you can **save time and increase efficiency during training**.



See more information: www.edibon.com/en/content/know-how

Information shown in this Booklet is about 2% of what Edibon had provided to customers who wants to close the gap between the Academics and Industries. For more information, please contact us.

As information of this file is intended to organizations like: HKPC, VTC, CLP, HKE, MTR, Town Gas, CEM and all Universities in Hong Kong and Macau, we would like to discuss details of what Edibon could offer to them.

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