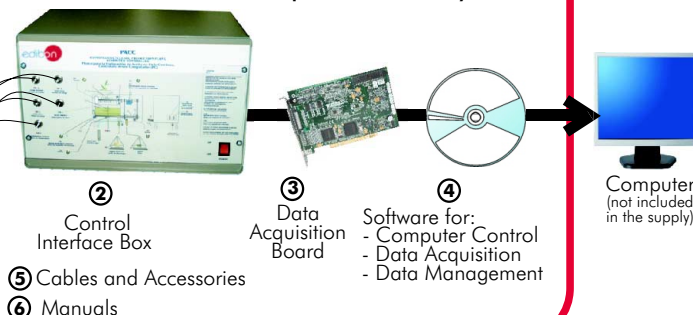


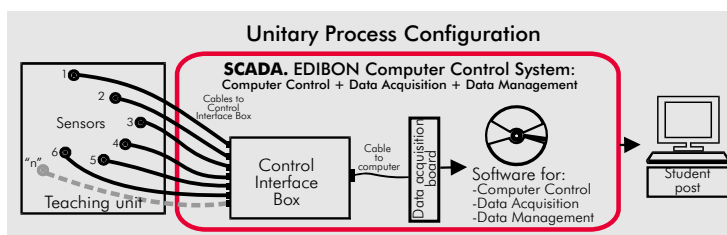


Always included in the supply:

### SCADA. EDIBON Computer Control System



① Unit: PACC. Continuous Cycle Oil Production Plant



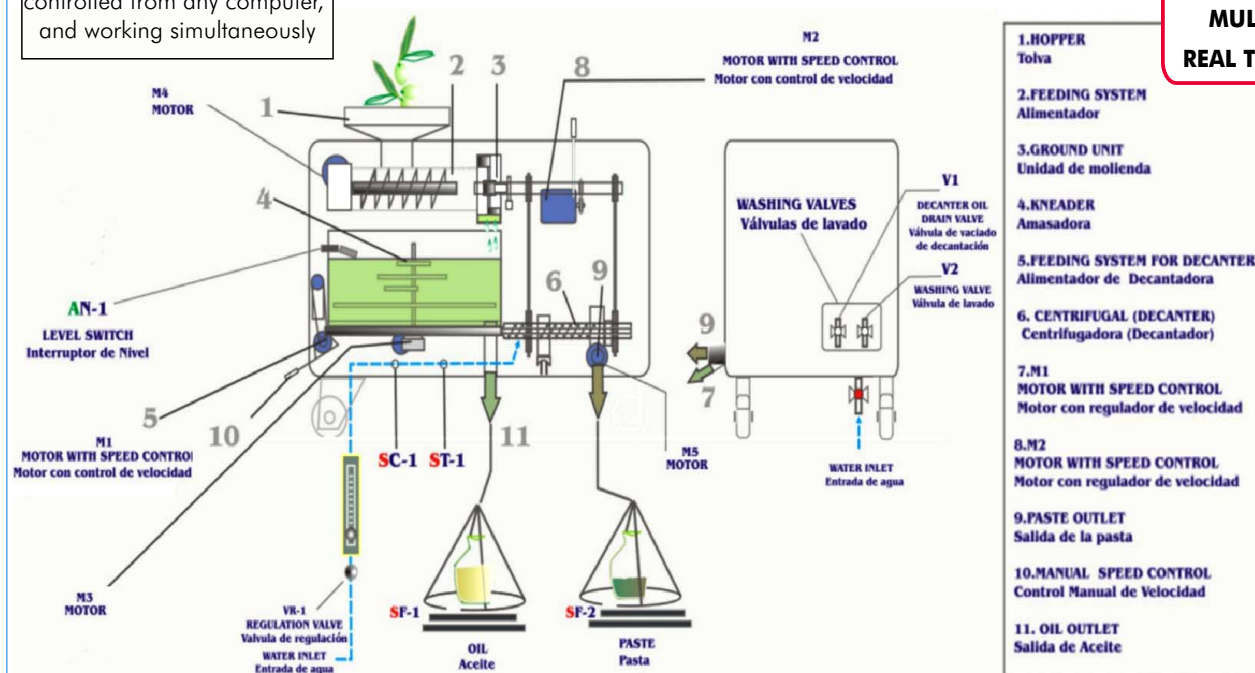
[www.edibon.com](http://www.edibon.com)

Products  
Products range  
Units  
12.-Food & Water Technologies

## PROCESS DIAGRAM AND ELEMENTS ALLOCATION

5 actuators and 4 sensors controlled from any computer, and working simultaneously

OPEN CONTROL  
+  
MULTICONTROL  
+  
REAL TIME CONTROL

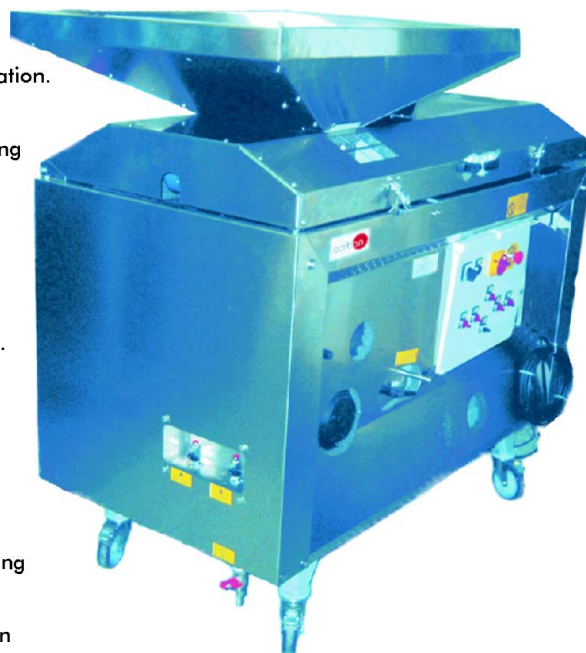


Note:  
ST= Temperature sensor.  
SC= Flow sensor.  
SF= Force sensor.

**Items supplied as standard**

**① PACC. Unit:**

Unit in stainless steel.  
 Diagram in the front panel with similar distribution to the elements in the real unit.  
 Hopper (200 Kg capacity).  
 Grinding unit (6000 rpm).  
 Mixing unit (50 Kg capacity).  
 Decanter with two phases, one for oil separation and other for water + paste separation.  
 The decanter has double speed: 6000 and 5700 rpm.  
 The decanter has 6 screws to control the quantity of the extracted oil.  
 Two speed controllers, one for controlling the decanter speed and other for controlling The decanter feed speed.  
 Sensors:  
     Flow Sensor.  
     2 Load Cells. Force sensors.  
     Temperature Sensor.  
 Level switch.  
 Five motors, two of them with speed control.  
 Fixed protections in all parts with movement for avoiding any contact with the hands.  
 Grille of protection on the hopper with borings.  
 Electric blockage.  
 Electric protection for electric current overload.  
 Control board blockage with IP 54 protection class.  
 Components in contact with the food product in stainless steel.  
 Isolated structure.  
 Regular revolving wheels.  
 Vibrations balancing system.  
 External unit, with anodized aluminium structure, for product collecting, with weighing system (2 Load Cells (50 Kg each one)).  
 This unit has 2 stainless steel aluminium tanks (capacity 50 l. each one).  
 Extraction speed: 50 kg/ hour. Power: 3 KW. Oil obtained has a temperature between 22-26°C and an acidity approx. : 0.4°.  
 The unit incorporates wheels for mobility.



PACC. Unit

**② PACC/CIB. Control Interface Box :**

Control interface box with process diagram in the front panel and with the same distribution that the different elements located in the unit, for an easy understanding by the student.  
 All sensors, with their respective signals, are properly manipulated from -10V. to +10V. computer output. Sensors connectors in the interface have different pines numbers (from 2 to 16), to avoid connection errors. Single cable between the control interface box and computer.  
 The unit control elements are permanently computer controlled, without necessity of changes or connections during the whole process test procedure. Simultaneously visualization in the computer of all parameters involved in the process. Calibration of all sensors involved in the process.  
 Real time curves representation about system responses. Storage of all the process data and results in a file. Graphic representation, in real time, of all the process/system responses.  
 All the actuators' values can be changed at any time from the keyboard allowing the analysis about curves and responses of the whole process. All the actuators and sensors values and their responses are placed in only one computer screen.  
 Shield and filtered signals to avoid external interferences.  
 Real time computer control with flexibility of modifications from the computer keyboard of the parameters, at any moment during the process. Real time computer control for pumps, compressors, resistances, control valves, etc. Open control allowing modifications, at any time and in a real time, of parameters involved in the process simultaneously.  
 Three safety levels, one mechanical in the unit, other electronic in control interface and the third one in the control software.



PACC/CIB

**③ DAB. Data Acquisition Board:**

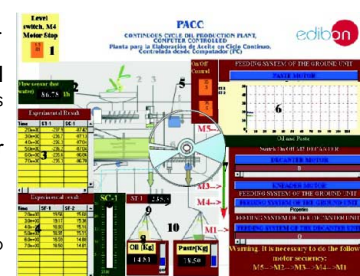
PCI Data acquisition board (National Instruments) to be placed in a computer slot. Bus PCI.  
 Analog input: Number of channels= 16 single-ended or 8 differential. Resolution=16 bits, 1 in 65536.  
     Sampling rate up to: 250 KS/s (Kilo samples per second).  
     Input range (V)=±10V. Data transfers=DMA, interrupts, programmed I/O. DMA channels=6.  
 Analog output: Number of channels=2. Resolution=16 bits, 1 in 65536. Maximum output rate up to: 833 KS/s.  
     Output range(V)=±10V. Data transfers=DMA, interrupts, programmed I/O.  
 Digital Input/Output: Number of channels=24 inputs/outputs. D0 or DI Sample Clock frequency: 0 to 1 MHz.  
 Timing: Counter/timers=2. Resolution: Counter/timers: 32 bits.



DAB

**④ PACC/CCSOF. Computer Control + Data Acquisition + Data Management Software:**

Compatible with actual Windows operating systems. Graphic and intuitive simulation of the process in screen.  
 Compatible with the industry standards.  
 Registration and visualization of all process variables in an automatic and simultaneously way. Flexible, open and multicontrol software, developed with actual windows graphic systems, acting simultaneously on all process parameters.  
 Management, processing, comparison and storage of data. Sampling velocity up to 250,000 data per second guaranteed. Calibration system for the sensors involved in the process.  
 It allows the registration of the alarms state and the graphic representation in real time.  
 Comparative analysis of the obtained data, after the process and modification of the conditions during the process.  
 Open software, allowing to the teacher to modify texts, instructions. Teacher's and student's passwords to facilitate the teacher's control on the student, and allowing the access at different work levels.  
 This unit allows that the 30 students of the classroom can visualize simultaneously all results and manipulation of the unit, during the process, by using a projector.



PACC/CCSOF

**⑤ Cables and Accessories**, for normal operation.

**⑥ Manuals:**

This unit is supplied with 8 manuals: Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration & Practices Manuals.

**\*References 1 to 6: PACC + PACC/CIB + DAB + PACC/CCSOF + Cables and Accessories + Manuals are included in the minimum supply, enabling a normal operation.**

Continue...

**Complementary items to the standard supply**

PLC. Industrial Control using PLC (7 and 8):

**⑦ PLC-PI. PLC Module:**

Circuit diagram in the front panel.

Front panel:

**Digital inputs(X) and Digital outputs (Y) block:**

16 Digital inputs, activated by switches and 16 LEDs for confirmation (red).

14 Digital outputs (through SCSI connector) with 14 LEDs for message (green).

**Analog inputs block:**

16 Analog inputs (-10V. to + 10V.) (through SCSI connector).

**Analog outputs block:**

4 Analog outputs (-10V. to + 10V.) (through SCSI connector).

**Touch screen:**

High visibility and multiple functions.

Display of a highly visible status.

Recipe function.

Bar graph function.

Flow display function.

Alarm list.

Multi language function.

True type fonts.

Back panel:

Power supply connector.

Fuse 2A.

RS-232 connector to PC.

Inside:

Power supply outputs: 24 Vdc, 12 Vdc, -12 Vdc, 12 Vdc variable.

**Panasonic PLC:**

**High-speed scan of 0.32  $\mu$ sec.** for a basic instruction.

**Program capacity of 32 Ksteps**, with a sufficient comment area.

Free input AC voltage(100 to 240 V AC).

DC input: 16 (24 VDC).

Relay output: 14 (250 VA AC/2 A).

**High-speed counter.**

**Multi-point PID control.**

**Digital inputs/outputs and analog inputs/outputs Panasonic modules.**

Communication RS232 wire, to computer (PC).

**⑧ PACC/PLC-SOF. PLC Control Software:**

For this particular unit, always included with PLC supply.



PLC-PI

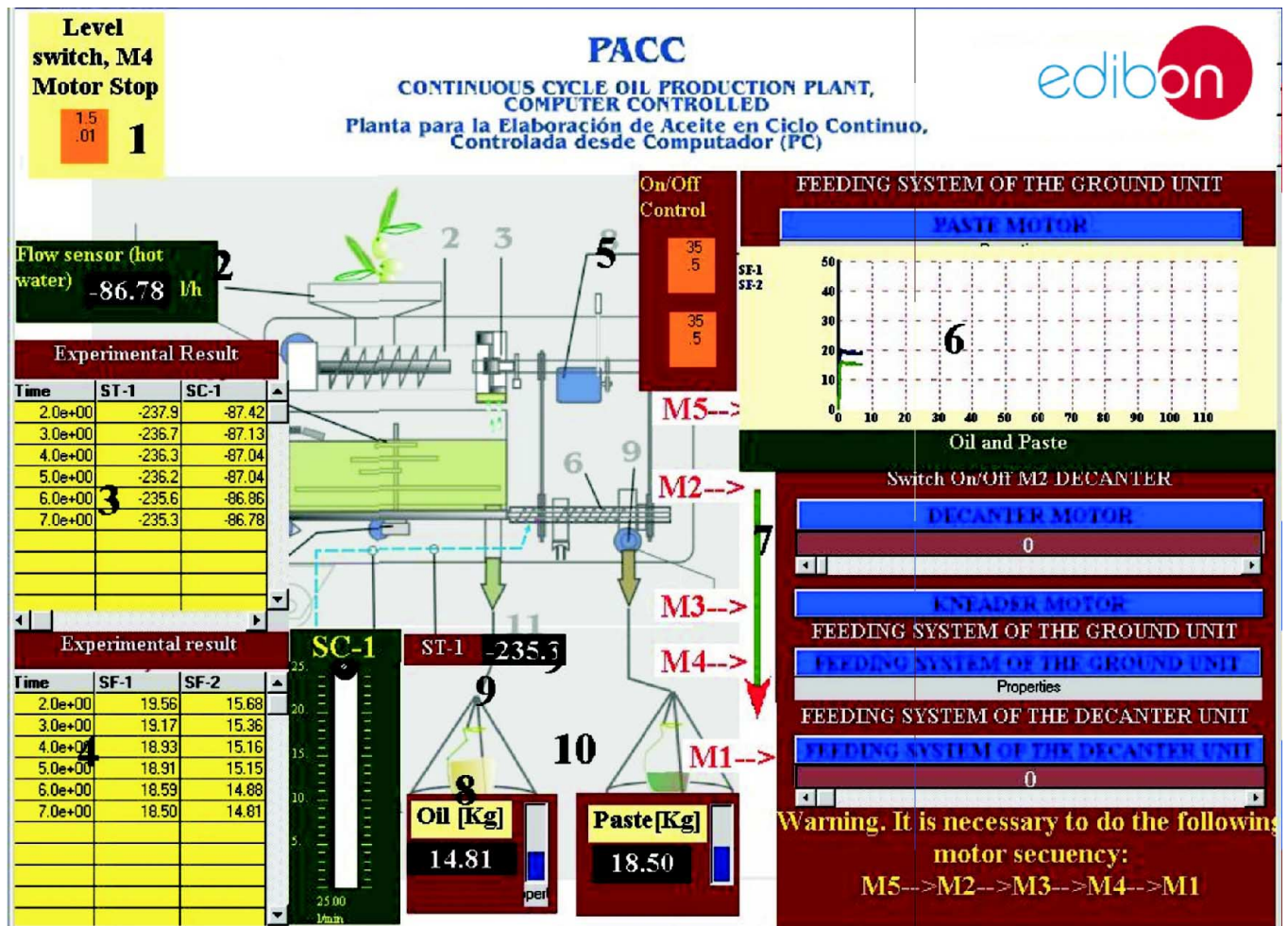
**Items available on request**

**⑨ PACC/CAL. Computer Aided Learning Software (Results Calculation and Analysis).**

**⑩ PACC/FSS. Faults Simulation System.**



## Some Software screens



Identifications	Description
1	Level switch alarm
2	Flow sensor; hot water
3	Experimental result, temperature & water flow
4	Experimental result; load cell SF-1 & SF-2
5	Control system, switch the motor off
6	Temperature evolution
7	Switch of the pump
8	Water flow
9	Temperature display
10	Weight for oil and residual product

Example of Sensors Calibration screen

Sensors Calibration - EDIBON, S.A.

Indicate the Card Installed:

☒ Analogical input ☐ Digital input ☐ Analogical output ☐ Digital output

Channel0 T1  
Channel1 T2  
Channel2 T3  
Channel3 T4  
Channel4 T5  
Channel5 T6  
Channel6 T7  
Channel7 T8  
Channel8 T9  
Channel9 T10  
Channel10 T11  
Channel11 T12  
Channel12 T13

Name:  Units:

$A0 + A1 \cdot V + A2 \cdot V^2 + A3 \cdot V^3$

Adjustment to straight line: ☐  $\pm 5V$  ☒  $\pm 10V$

A0:  A1:  A2:  A3:

Check channel

Interval of sampling (milliseconds):  Medida:

Start

Read Configuration Save Configuration Cancel OK



## REQUIRED SERVICES

- Electric Supply: 3 KW, single-phase, 220V/50Hz or 110V/60Hz.
- Water Supply.
- Computer (PC).

## RECOMMENDED ACCESSORIES

- Stopclock.
- Burette.

## DIMENSIONS & WEIGHTS

- PACC Unit: -Dimensions: 1500 x 800 x 1700 mm. approx.  
-Weight: 300 Kg. approx.
- Control Interface Box: -Dimensions: 490 x 330 x 310 mm. approx.  
-Weight: 10 Kg. approx.
- PLC Module (PLC-PI): -Dimensions: 490 x 330 x 310 mm. approx.  
-Weight: 30 Kg. approx.

\*Specifications subject to change without previous notice, due to the convenience of improvements of the product.



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REPRESENTATIVE:

