The **MT-C5002** model is a teaching support intended for studying an auto-regulated air-conditioning automotive system. Our concept integrates 3D simulation, a major asset for the complete comprehension of the system.

OBJECTIVES

- Visualize and understand in detail the most complex air-conditioning phenomena such as heat exchanges, refrigerant state changes (liquid, mixed, vapor), air mixing and distribution in the cabin, temperature regulation.
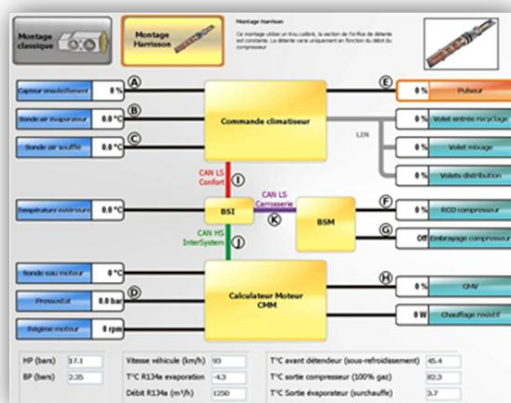- Proceed to the full AC system functional analysis.
- Study thermodynamics.

DESIGN

Supported by a steel structure, the model is composed of two large 19' touch screens (with 6 mm anti stripes protection), a real automotive air-conditioning ECU, a vehicle's environment control panel, a measurement deck and an integrated central processing unit.

SPECIFICATIONS

3D Simulation and Visualization screen:

- Refrigerant state changes, temperature and pressure of the cooling agent.
- Air distribution and air-conditioning simulation (heat exchange, air recycling, mixing, and distribution in cabin).
- 2 types of assembly, with thermostatic expansion valve or with sized orifice ("Harrison assembly").
- Dynamic detailed visualization of various components and their principle of functionality (compressor with variable capacity, thermostatic pressure reducing valve, condenser, evaporator, filters, accumulator …).
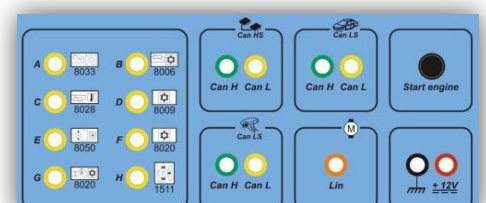

Control screen:

- Shows the full AC cold loop and air distribution parameters as well as all measurements accessible through the measurement panel (measurement sockets and diagnostic plug).
- Allows visualizing in detail the full AC system's architecture (sensors, actuators, communication networks, ECU).
- Shows dynamically the influence of the external environment parameters onto components, refrigerant, etc.
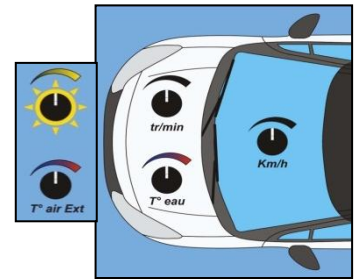
Measurement deck:

- Gives access to communication networks: main vehicle's CAN HS, specific CAN HS diagnostic bus, CAN LS comfort and body, and LIN buses.

- Allows control signals measurements: fans, PWM compressor's capacity, compressor's clutch, cooling fans group.

Vehicle's environment control panel:

Allows the adjustment of vehicle's environment and status as: level of sunshine, outside temperature, engine's cooling temperature, vehicle speed and engine's RPM.
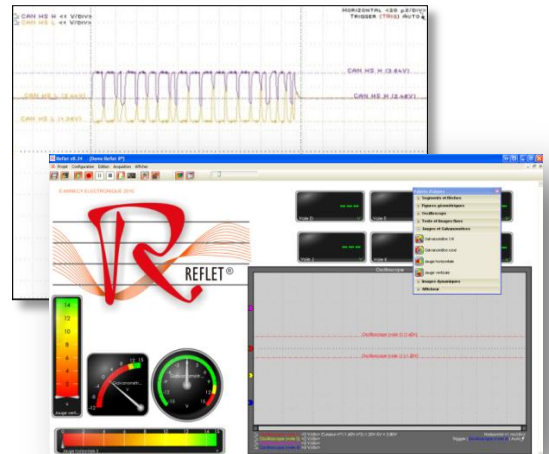
EQUIPMENT

The REFLET® is a measurements logging system specifically designed for automotive applications. It allows real-time playback and recording, curves tracing, and more.

REFLET® also provides a 3D instruments interface and dynamic visualization of 3D objects. The REFLET® software is delivered with the MT-C5002 teaching model.

The REFLET® is comparable with group of products *EXXOTEST®* MUXUtilities (MUXTrace, MUX DLC, etc.) those are also delivered with the MT-C5002.

As an option you can use with this teaching model our acquisition system dedicated to automotive REFLET® that allows using:

- USB connection,
- 4 traces analog and digital oscilloscope module,
- 2D tools interface,
- 3D instruments interface, dynamic visualization of 3D object - *EXXOTEST®* innovation

OTHER

- For this teaching support you can order a special MT-table with castors.
- Power supply: 220/110Vac – 50/60Hz
- Size: 1200 X 800 X 1200 mm (transportation box)
- Gross weight :   95 Kg (ready to ship)
- Net weight: 85 Kg

Find all *EXXOTEST®* products on the Internet: www.exxotest.com