



**AUTOMOBILE AIR-CONDITIONING CIRCUIT
DIAGNOSTIC AID TOOL**

EXXOCLIM 3

User's guide



www.exxotest.com

Ref Doc. DM297796-v1



USAGE PRECAUTIONS CONCERNING THE USE OF THE EXXOCLIM 3 TOOL AND COOLANT FLUID R134A

- *This equipment is designed exclusively for professionals with an understanding of the principles of refrigeration, refrigeration systems, refrigeration gases and the damage that can be caused by pressurised equipment.*
- *Carefully read these usage instructions.*
- *The unit must never be used with a coolant different from the one for which it was designed.*
- *Before beginning an operation, check that the hoses used do not contain any non-condensable gas.*
- *Avoid inhaling the vapour from coolant gases.*
- *Use appropriate protective equipment such as goggles and gloves. Contact with the coolant can cause serious visual and physical harm to the user. The low boiling point (about -30°C) of the coolant can cause frostbite.*
- *Work at a distance from naked flames and hot surfaces. The coolant gas breaks down at high temperatures, releasing toxic substances harmful to the operator and the environment.*
- *Operate the unit only in premises with appropriate ventilation and good air circulation.*
- *Before disconnecting the unit, check that all of the valves are closed. This will avoid dispersing coolant in the atmosphere.*
- *The unit must always function under the supervision of the operator.*
- *Do not use the interface near to explosive gas, vapour or dust*
- *Respect the maximum levels indicated on the interface.*
- *Make sure the equipment is working correctly by measuring known levels. If there is any doubt - have the equipment checked.*

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1. INTRODUCTION

An essential tool for diagnostics on R134A automobile air-conditioning systems, the EXXOCLIM 3 interface lets you take readings and perform tests or automatic diagnostics on any system fitted with one or two service valves.

The three operating modes make it possible for users of varying degrees of experience to quickly and simply carry out complete diagnostics of the cold loop, complete a simple charge test and an efficiency check on a circuit component, or refine the search for a malfunction using precise physical measurements (pressures, temperatures, hygrometry readings, etc.).

This tool can be upgraded and you will be informed of any software updates and associated instructions by your EXXOTEST® reseller. This lets you take advantage of all software developments, providing you with a tool that constantly meets your needs.



2. TRANSPORT CASE

Description of contents

The EXXOCLIM 3 transport case contains the following items:

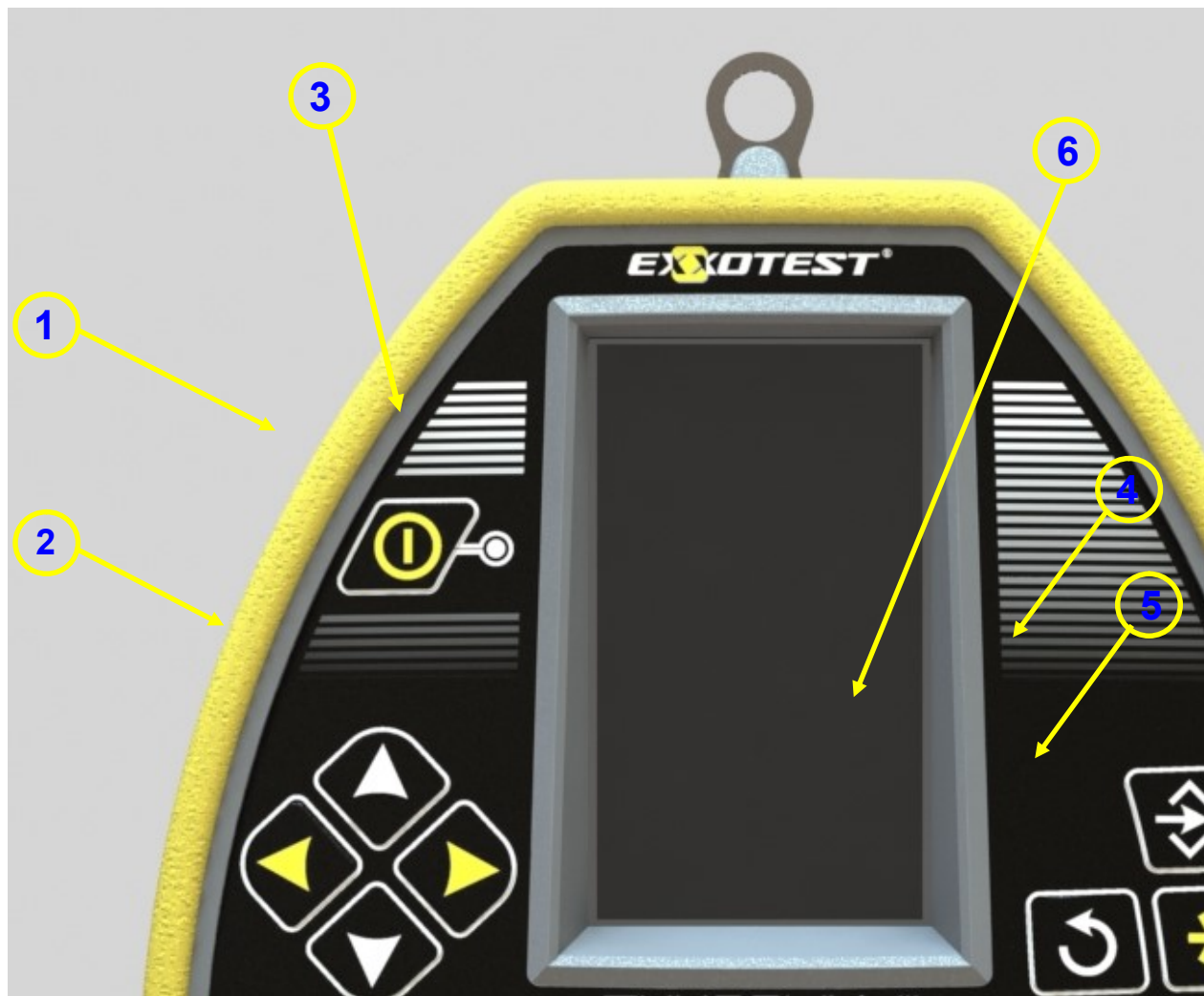
EXXOCLIM 3 tool: placed under the engine cover, it can read and process the physical measurements in the air-conditioning circuit and can display, record and store data. As it communicates with a PC via a USB link (CD-ROM containing drivers and software for managing records supplied) you can print the data readings (diagnostic report)

Bundles and quick-release couplings for the R134 service valves: for measuring high and low pressures in the circuit

THR probe: communicating by radio with the EXXOCLIM 3, it can measure the temperatures and relative humidity of the ambient or pulsed air. The THR probe is switched on using a ball switch that detects the movement of the probe when it is picked up

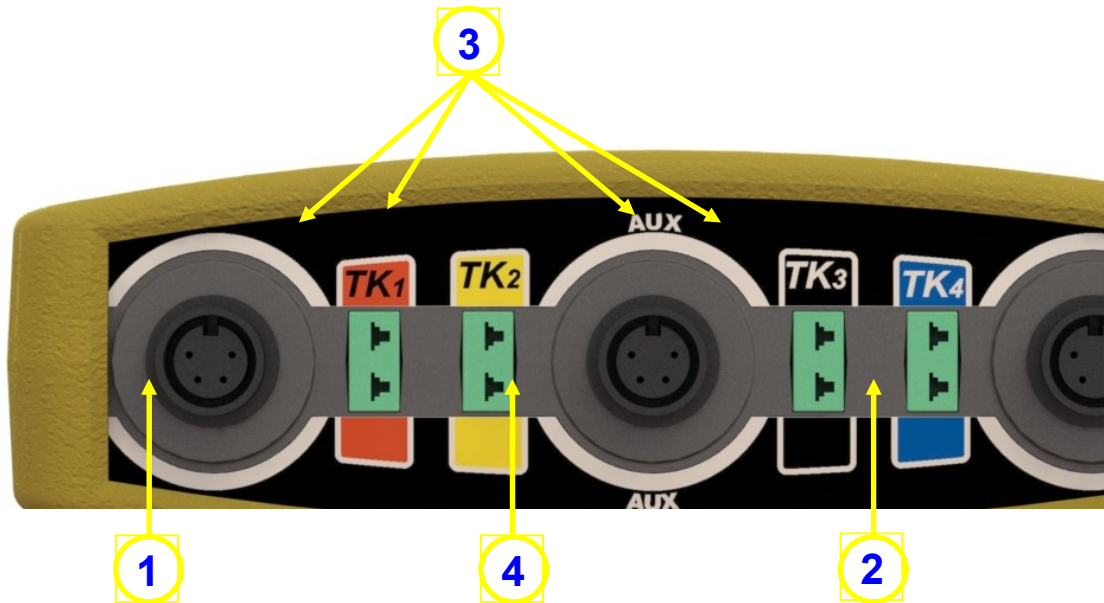
TK probes: 4 thermocouple probes for measuring temperatures in the cooling fluid by contact with the metal tubes in the air-conditioning circuit

Front side



- 1. Start / stop button
- 2. Navigation block (directional buttons)
- 3. LED state indicator
- 4. Context menu access button
- 5. Validation button
- 6. Back button

Connections




1. High-pressure measurement input 0 / 36 bars (maximum acceptable pressure: 40 bars)
2. Low-pressure measurement input 0 / 12 bars (maximum acceptable pressure: 16 bars)
3. TK1 to TK4 measurement inputs for the thermocouple probes
4. Auxiliary input (reserved for the use of optional sensors)



- TK1 to TK4 temperature measurement inputs: Only use with the supplied type K thermocouples
- Low-pressure measurement input: Never exceed the maximum acceptable pressure of 16 bars
- High-pressure measurement input: Never exceed the maximum acceptable pressure of 40 bars

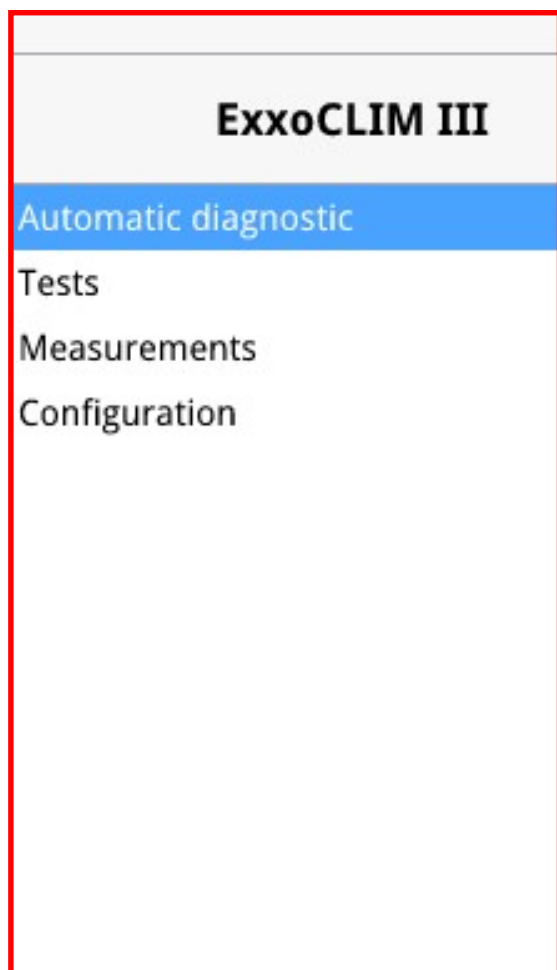
3. IMPLEMENTATION

Make the connections as described below:

1. Connect the high-pressure and low-pressure bundles to the tool's connectors identified by the markings "HP" and "LP".
2. Connect the high-pressure and low-pressure bundles to the high-pressure (red) and low-pressure (blue) service valves.
3. Connect the 4 thermocouple probes TK1 to TK4 to the locations provided for this purpose on the EXXOCLIM 3 casing
4. Press button  to start the tool

The diagnostic tool is now ready to be used; the connections to the vehicle of the various elements, TK and THR probes, bundles pressure switch and HP & LP quick-release couplings will be indicated to you by the tool during its use and according to the chosen test mode.

WELCOME MENU



On this main menu for the tool,
4 functions are proposed:

Automatic diagnostic:

Mode allowing the full diagnostic of the air-conditioning circuit, with final interpretation of the results of the measurements

Test:

Test: Mode used to test a component or function of the air conditioning circuit

Measurement:

Mode that digitally displays the readings taken (multimeter type)

Configuration:

Access to the tool's configuration (display, language, pairing sensors,...)

5. 'MEASUREMENT' MODE

The measurement mode displays the following physical readings:

- High and low temperatures in the vehicle's air-conditioning circuit
- Temperature and relative humidity of the ambient air or the air pulsed by the system
- Temperatures of the coolant flowing through the tubes attached to the TK1-4 clamps

Measurements	
Air temperature	10.9
Humidity	81.6
High pressure	11.5
Low pressure	2.2
TK1 temperature	42.3
TK2 temperature	40.3
TK3 temperature	39.4
TK4 temperature	9.6

6. 'TEST' MODE

The test mode allows its user to carry out a test sequence meeting a defined requirement.

In each of these test sequences, the user is guided by the EXXOCLIM 3 tool, which offers a precise description of the connections to be made prior to the test, as well as the implementation of this test.

Efficiency: Checks the efficiency of the air-conditioning circuit

Load: Checks the level of the cooling fluid load in the air-conditioning circuit

Condenser: Checks the efficiency of the condenser

Evaporator: Checks the efficiency of the evaporator-expansion valve block

Compressor: Checks the functioning of the variable-capacity compressor (internal / mechanical control)

CAUTION: Access to each of these tests will depend directly on the vehicle configuration selected by the user.

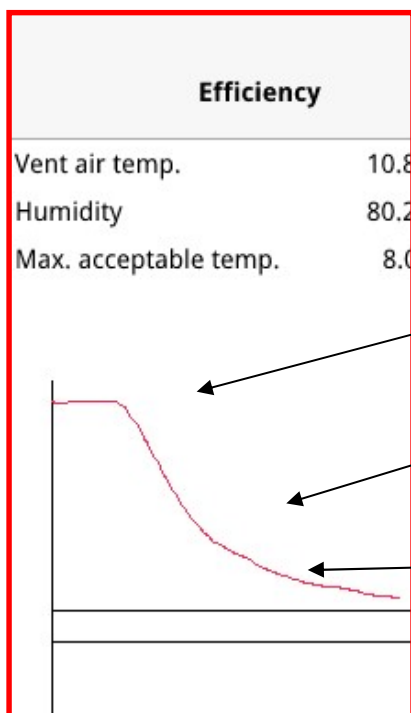
Tests
Efficiency
Load
Condenser
Evaporator
Compressor

EFFICIENCY TEST

The efficiency test, broken down into 5 phases, lets its user determine the efficiency of the air-conditioning system that is tested according to the initial conditions measured, namely the temperature and relative humidity of the ambient air (outside the vehicle).

Efficiency	Efficiency	Efficiency								
<p>Proceed to the following connection</p> <p>Place the THR sensor outside the vehicle away from all sources of heat generated by the vehicle or another device running.</p> <p>Next to continue.</p>	<p>Place the THR sensor outside the vehicle away from all sources of heat generated by the vehicle or another device running.</p> <table border="1"> <tr> <td>Air temperature</td> <td>°C</td> </tr> <tr> <td colspan="2">23.5</td> </tr> <tr> <td>Humidity</td> <td>%</td> </tr> <tr> <td colspan="2">61.0</td> </tr> </table>	Air temperature	°C	23.5		Humidity	%	61.0		<p>Test conditions :</p> <ul style="list-style-type: none"> - A/C compressor ON since 5 to 10 minutes - Engine speed hold between 1800 and 2200 rpm - Air recycling function OFF - Temperature selector on maximum cold position - Place the ventilator's selector on MAXIMUM air speed position - Air distributor on frontal flow position <p>Next to continue.</p>
Air temperature	°C									
23.5										
Humidity	%									
61.0										

The last of the 5 screens in this test is shared between a digital display of the values of the temperature, relative humidity and maximum theoretical temperature* of the pulsed air, and a graphical display representing the change to the temperature of the pulsed air. (The maximum theoretical temperature is variable according to the initial conditions of temperature and relative humidity of the ambient air.)



This graphical display is broken down into 3 zones:

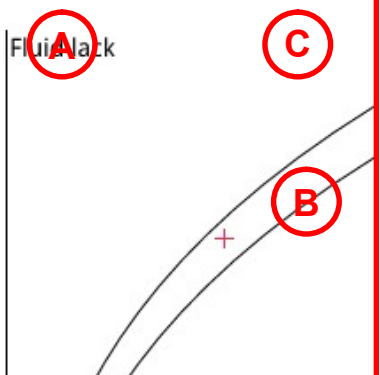
Zone A: indicates an incorrect temperature of the pulsed air

Zone B: indicates a satisfactory temperature of the pulsed air

Zone C: indicates a correct temperature of the pulsed air (lower than the theoretical limit)

LOAD TEST

The load test, intended to determine the correct load level for the cooling fluid in the tested air-conditioning circuit, takes place in three stages:

Load	Load	Load						
<p>Proceed to the following connections:</p> <ul style="list-style-type: none">- High-pressure coupler (red) on the circuit's service valve- TK2 temperature sensor on condenser's output metallic manifold <p>Next to continue.</p>	<p>Test conditions :</p> <ul style="list-style-type: none">- A/C compressor ON since 5 to 10 minutes- Engine speed hold between 1800 and 2200 rpm- Air recycling function OFF- Temperature selector on maximum cold position- Place the ventilator's selector on MAXIMUM air speed position- Air distributor on frontal flow position <p>Next to continue.</p>	<table><tr><td>High pressure</td><td>11.3</td></tr><tr><td>HP temp.</td><td>39.3</td></tr><tr><td>Subcooling</td><td>7.9</td></tr></table> 	High pressure	11.3	HP temp.	39.3	Subcooling	7.9
High pressure	11.3							
HP temp.	39.3							
Subcooling	7.9							

The last of these 3 screens indicates 3 physical readings to its user:

- High pressure in bars
- Temperature of the high pressure fluid in degrees Celsius
- Value of the sub-cooling in degrees Celsius

It also represents, in graphical form, the level of load in the circuit using a cursor that moves on a graph containing 3 zones:

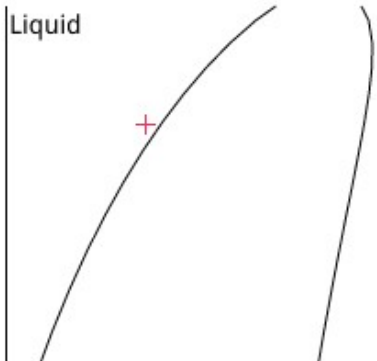
Zone A: the cursor stabilised in this zone indicates a lack of coolant-fluid load in the tested circuit

Zone B: the cursor stabilised in this zone indicates an excess of coolant-fluid load in the tested circuit

Zone C: the cursor stabilised between the 2 curves delimiting this zone indicates a **satisfactory load** in the tested circuit

CONDENSER TEST

The condenser test allows the user to determine the efficiency of this component of the air-conditioning circuit by allowing a good amount of high-pressure coolant fluid to pass from its gaseous phase (on entry to the condenser) to its liquid phase (on output from the condenser).

Condenser	Condenser	Condenser								
<p>Proceed to the following connections:</p> <ul style="list-style-type: none">- High-pressure coupler (red) on the circuit's service valve- TK1 temperature sensor on condenser's input metallic manifold- TK2 temperature sensor on condenser's output metallic manifold <p>Next to continue.</p>	<p>Test conditions :</p> <ul style="list-style-type: none">- A/C compressor ON since 5 to 10 minutes- Engine speed hold between 1800 and 2200 rpm- Air recycling function OFF- Temperature selector on maximum cold position- Place the ventilator's selector on MAXIMUM air speed position- Air distributor on frontal flow position <p>Next to continue.</p>	<table><tr><td>High pressure</td><td>11.4</td></tr><tr><td>Input temperature</td><td>41.1</td></tr><tr><td>Output temperature</td><td>39.8</td></tr><tr><td>Subcooling</td><td>7.8</td></tr></table> 	High pressure	11.4	Input temperature	41.1	Output temperature	39.8	Subcooling	7.8
High pressure	11.4									
Input temperature	41.1									
Output temperature	39.8									
Subcooling	7.8									

The last of these 3 screens, opposite, gives the user the digital values of:

- The high-pressure
- The temperature of the fluid on output from the condenser
- The temperature difference between the input to the condenser and output from it
- The value of the sub-cooling

Also, a cursor moves on a graph known as the "R134 gas enthalpy graph", which has 3 zones:

Cursor positioned in:

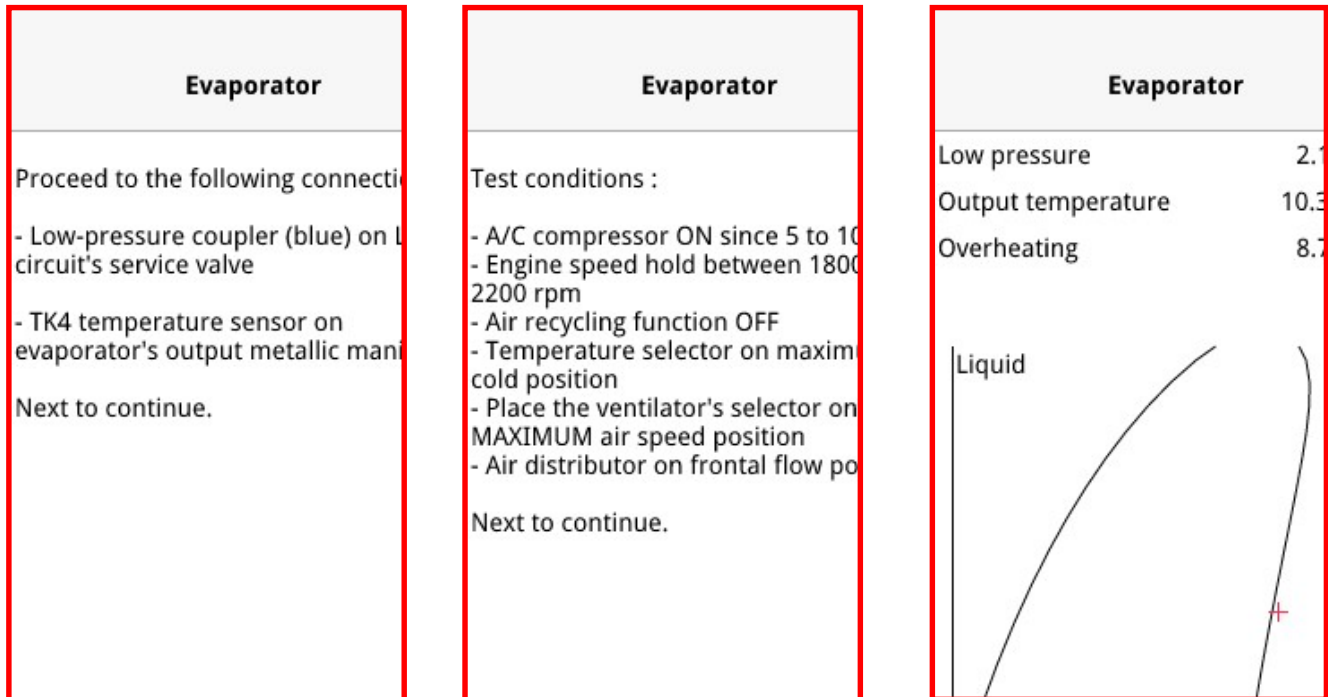
Zone A: fluid on output from the condenser in the liquid state – correct result

Zone B: fluid on output from the condenser saturated – incorrect result

Zone C: fluid on output from the condenser in the gaseous state – incorrect result

EVAPORATOR TEST

The evaporator test lets the user determine the efficiency of the "evaporator – expansion-valve" block of the air-conditioning circuit, by letting a good amount of the coolant fluid pass from a "high-pressure – liquid" state to a "low pressure – gaseous" state.



The last of these 3 screens, above, gives the user the digital values of:

- The low pressure
- The temperature of the fluid on output from the evaporator
- The superheating value

Also, a cursor moves on a graph known as the "R134 gas enthalpy graph", which has 3 zones:

Cursor positioned in:

Zone A: fluid on output from the evaporator in the liquid state – incorrect result

Zone B: fluid on output from the evaporator saturated – incorrect result

Zone C: fluid on output from the evaporator in the gaseous state – correct result

COMPRESSOR TEST

The compressor test lets the user check the correct functioning of a variable-capacity compressor (controlled internally or externally), and to check that it operates properly according to the demand for pulsed air (by the user operating the pulser control).

Compressor	Compressor	Compressor						
<p>Proceed to the following connections:</p> <ul style="list-style-type: none"> - High-pressure coupler (red) on H circuit's service valve - Low-pressure coupler (blue) on L circuit's service valve <p>Next to continue.</p>	<p>Test conditions :</p> <ul style="list-style-type: none"> - A/C compressor ON since 5 to 10 minutes - Engine speed hold between 1800 and 2200 rpm - Air recycling function OFF - Temperature selector on maximum cold position - Place the ventilator's selector on MAXIMUM air speed position - Air distributor on frontal flow position <p>Next to continue.</p>	<table border="1"> <thead> <tr> <th colspan="2">Compressor</th> </tr> </thead> <tbody> <tr> <td>High pressure</td> <td>11.6</td> </tr> <tr> <td>Low pressure</td> <td>2.1</td> </tr> </tbody> </table>	Compressor		High pressure	11.6	Low pressure	2.1
Compressor								
High pressure	11.6							
Low pressure	2.1							

The last of these 3 screens indicates 2 physical readings to its user:

- High pressure in bars
- Low pressure in bars

It also represents, in graphical form, the state of operation of the compressor using a cursor that moves within a graph*, specific to the functioning of the variable-capacity compressors and having several zones:

Zone A: the cursor stabilised in this zone indicates that the compressor is in minimum capacity

Zone B: the cursor stabilised in this zone indicates that the compressor is in maximum capacity

Zone C: the cursor stabilised in this zone indicates that the compressor is in the regulation phase



: the cursor stabilised in one of these zones indicates a malfunction

* this graph is shown only in the case of a vehicle configuration that uses a variable-capacity compressor.

7. AUTOMATIC DIAGNOSTIC MODE

The Automatic Diagnostic mode allows its user to perform complete diagnostics of an R134 air-conditioning circuit fitted with 2 service valves, and to obtain an interpretation of the results of readings after just a few minutes.

Throughout this procedure, the user is guided by the EXXOCLIM 3 tool.

DIAGNOSTIC PROCEDURE

Configuration of the air-conditioning system to be tested:

Automatic diagnostic
Refrigerant
AC System
Compressor's capacity

During its analysis, the EXXOCLIM 3 tool must take into account the specifics of the cold loop of the air-conditioning system to be tested.

The following parameters must therefore be defined, before any diagnostic test is performed:

Coolant:

Type of coolant used, R134a or HFO1234yf (note: selecting HFO1234yf requires the use of the optional HFO1234yf sensors kit)

AC system:

Assembly with expansion valve or assembly with calibrated opening

Compressor capacity:

Fixed-capacity or variable-capacity compressor (without distinction between type of control, internal or external)

Automatic diagnostic

Proceed to the following connections:

- High-pressure coupler (red) on H circuit's service valve
- Low-pressure coupler (blue) on L circuit's service valve

Next to continue.

Description of the connections necessary to the readings to be taken by the tool

Automatic diagnostic

Proceed to the following connections:

- TK2 temperature sensor on condenser's output metallic manifold
- TK3 temperature sensor on expansion valve's input metallic manifold
- TK4 temperature sensor on evaporator's output metallic manifold

Next to continue.

Automatic diagnostic

Proceed to the following connection

Place the THR sensor outside the vehicle
away from all sources of heat generated
by the vehicle or another device near

Next to continue.

Description of the conditions for taking
the reading of the initial conditions

Acquisition 1:

Acquisition of the temperature and the
ambient relative humidity.

Validation of this page allows the tool
to determine the efficiency thresholds
that the tested air-conditioning system
must reach.

Automatic diagnostic

Place the THR sensor outside the vehicle
away from all sources of heat generated
by the vehicle or another device near

Air temperature	°C
26.2	
Humidity	%
51.6	

Automatic diagnostic

Test conditions :

- A/C compressor ON since 5 to 10
- Engine speed hold between 1800
- 2200 rpm
- Air recycling function OFF
- Temperature selector on maximum
- cold position
- Place the ventilator's selector on
- MAXIMUM air speed position
- Air distributor on frontal flow po

Next to continue.

Description of the implementation of the automatic procedure.

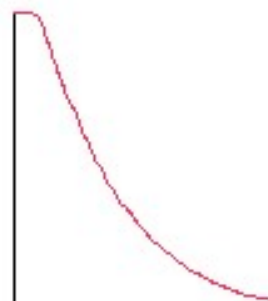
Acquisition 2:

New acquisition phase. Only the measures of temperature and relative humidity of the pulsed air are displayed.

A scrollbar, shown here surrounded in red, indicates the state of progress of the test. The user must maintain the implementation conditions that were described previously during the entire period of the test.

Automatic diagnostic

Vent air temp.	11.1
Humidity	67.8
Max. acceptable temp.	8.0



End of the procedure – case of a positive result:

A summary table (opposite) is displayed, showing the minimum, maximum and average values of the readings taken during the diagnostic procedure.

The initial conditions, and the yield of the air-conditioning circuit, meaning the lowest temperature reached by the pulsed air, are also displayed.

Automatic diagnostic	
GOOD RESULT	

Automatic diagnostic	
GOOD RESULT	
Initial conditions	
Ambient air temp.	23.1
Ambient air humidity	60.2
Measurements	
Vent air temp.	7.7
High pressure	11.0
Low pressure	2.0
HP temp.	39.8
LP temp.	13.7
Subcooling	6.4
Overheating	12.9

A final screen then confirms that the air-conditioning system is working properly.

It is then possible to save the results for consultation or subsequent printing, or to exit the diagnostic procedure.

End of the procedure – case of a negative result*:

A summary table is displayed, showing the minimum, maximum and average values of the readings taken during the diagnostic procedure.

The initial conditions, and the yield of the air-conditioning circuit, meaning the lowest temperature reached by the pulsed air, are also displayed.

Automatic diagnostic
BAD RESULT
Possible faults reasons
ventilator stopped or faulty wrong air mixer flap position

Automatic diagnostic	
BAD RESULT	
Initial conditions	
Ambient air temp.	18.6
Ambient air humidity	83.9
Measurements	
Vent air temp.	11.3
High pressure	11.3
Low pressure	2.2
HP temp.	39.7
LP temp.	10.0
Subcooling	7.5
Overheating	7.2

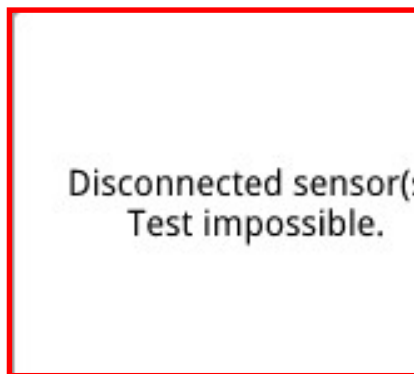
The automatic processing of the values read during the 2 acquisition phases of the procedure then allow the tool to suggest the possible causes of the malfunction in the air-conditioning circuit tested, and to guide the user in seeking the cause of the breakdown.

It is then possible to save the results for consultation or subsequent printing, or to exit the diagnostic procedure.

PROCEDURE INTERRUPTIONS

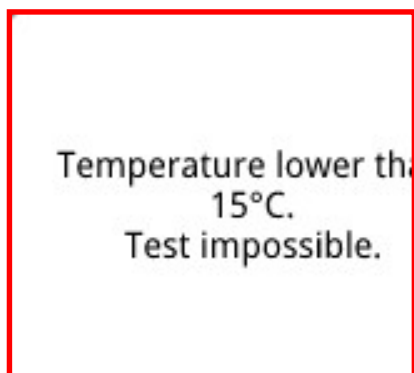
During the automatic diagnostic procedure, when the tool detects inconsistencies in the readings taken, it can interrupt the procedure of its own accord.

Sensors disconnected:



This interruption happens when, during the diagnostic procedure, the tool detects that no signal is being received from one of the sensors. The diagnostic cannot be continued under these circumstances.

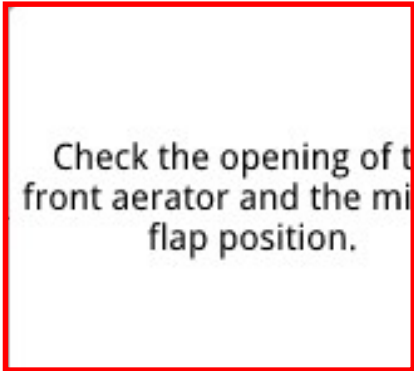
Inappropriate ambient temperature:



This other interruption occurs only when measuring the initial conditions prior to the efficiency test (in test mode) or at the beginning of the automatic diagnostic procedure.

This is because no test or diagnostic of an air-conditioning circuit can be really conclusive if the temperature outside the car is less than 15°C.

Abnormal temperature of the pulsed air:

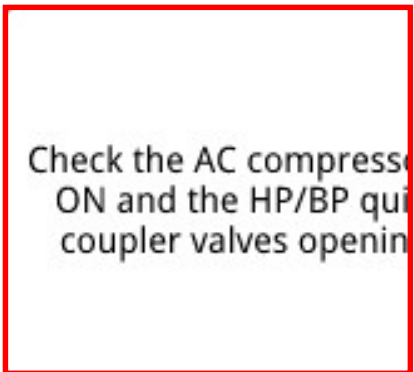


Check the opening of the
front aerator and the mixing
manifold flap position.

This interruption, also reserved for the automatic diagnostic procedure, may occur if the temperature of the pulsed air remains abnormally high.

The user is invited to check that the front aerator is properly open, and the position of the mixing manifold. After checking, the diagnostic procedure can be continued by selecting and validating the "continue" button.

Incoherent pressures measured:



Check the AC compressor
ON and the HP/BP quick
coupler valves opening.

This interruption, also reserved for the automatic diagnostic procedure, may happen if the measured pressures are incoherent.

8. MANAGEMENT OF RECORDS

The automatic diagnostic mode of the AIR CONDITIONING function in the **EXXOCLIM 3** tool can record data that can subsequently be processed for consultation or printing.

In automatic diagnostic mode, data saving is always proposed at the end of the diagnostic procedure.

The diagnostics thus recorded can be transferred to a personal computer on which the USB driver of the tool has previously been installed, as well as the record-management application "LOGICLIM" (see the following section).

9. CONNECTING THE TOOL TO A PC

EXXOCLIM 3 has a USB port for connecting it to a PC. This communication is necessary when:

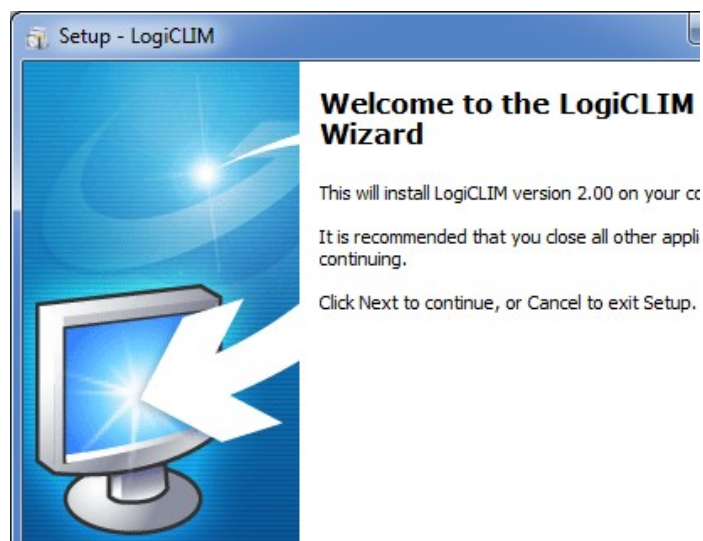
- Updating the software for EXXOCLIM 3
- Using the LOGICLIM utility
- Using the USB CAPTURE utility

The LOGICLIM software suite MUST be installed before first connecting the tool to the PC.

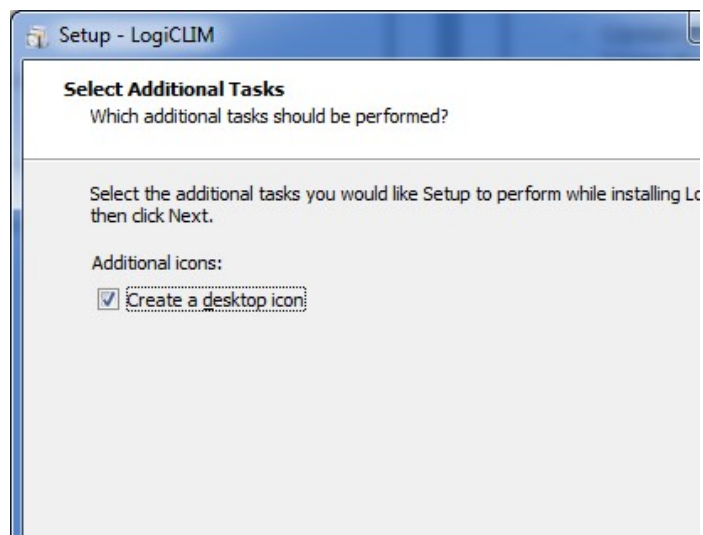
Installing the software suite:

Insert the " EXXOCLIM 3 " CD-ROM in the computer's CD-ROM reader and follow the instructions that appear on the computer screen (execute the "Logiclim Setup" file).

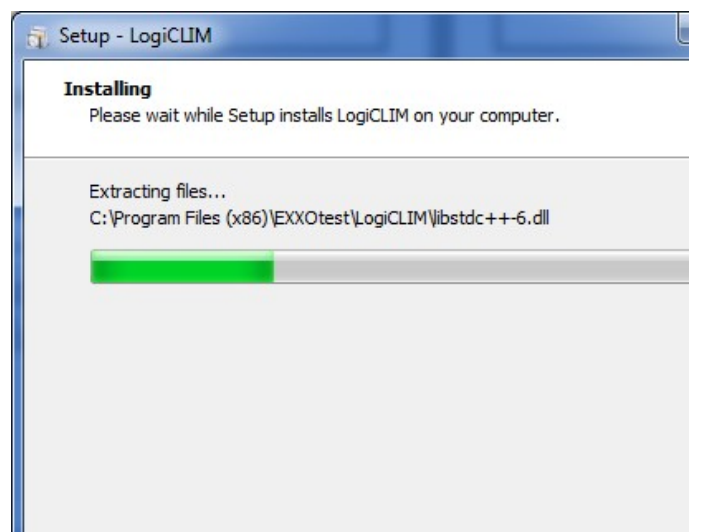
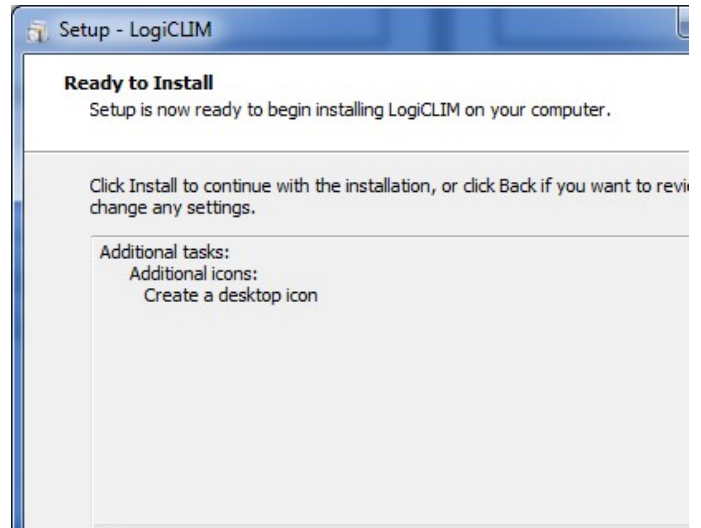
Important note: the LOGICLIM software suite requires a PC with a Windows XP SP3 or later operating system.



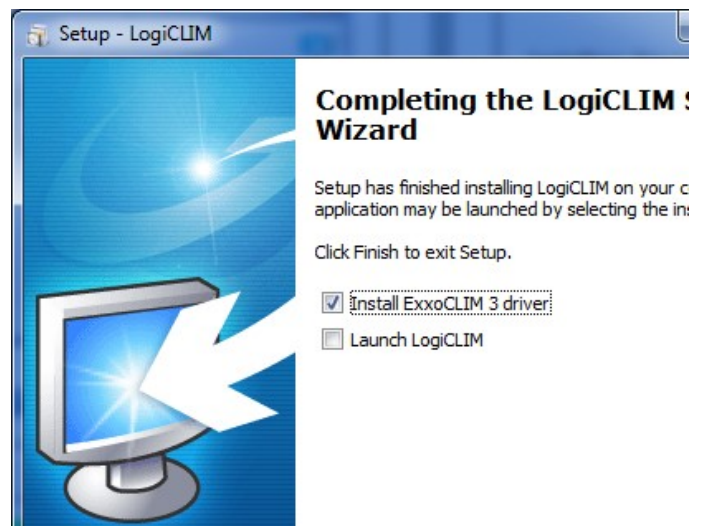
Click on the "next" button to start the installation process



Click on the "install" button to continue the installation

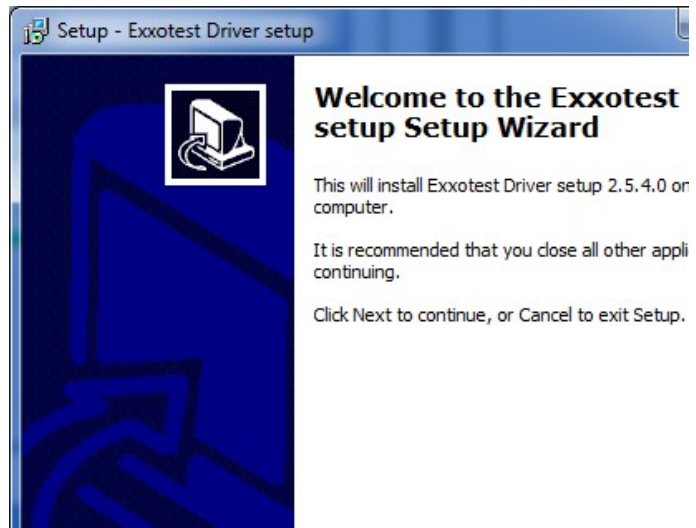


The installation is finished. If it is a 1st installation, you must check the checkbox "install the EXXOCLIM 3 driver" then click the "finish" button

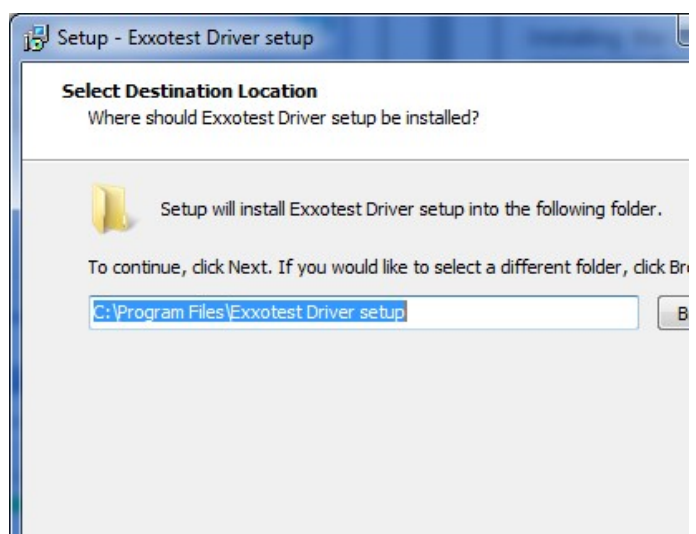


Installing the USB driver requires communication between EXXOCLIM 3 and the PC

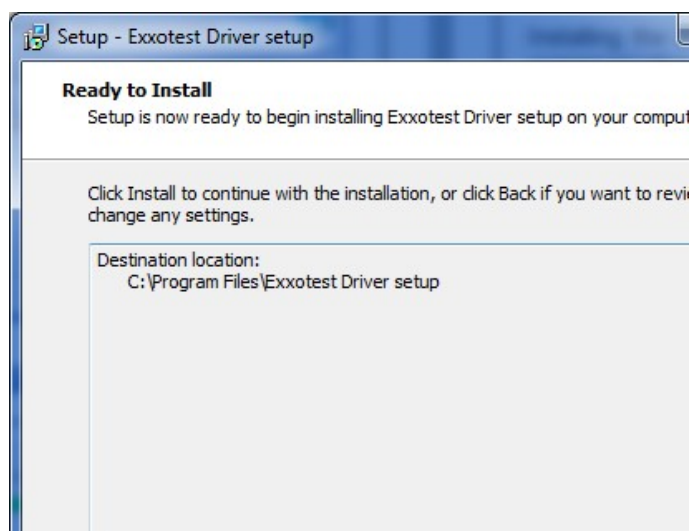
Click on the "next" button to start the installation process

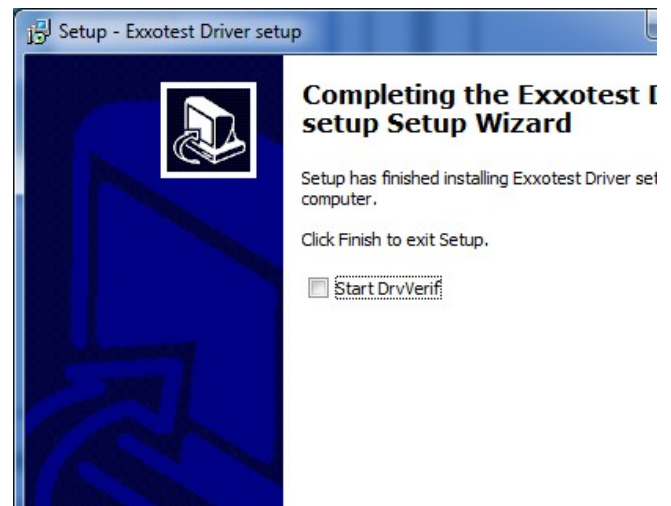
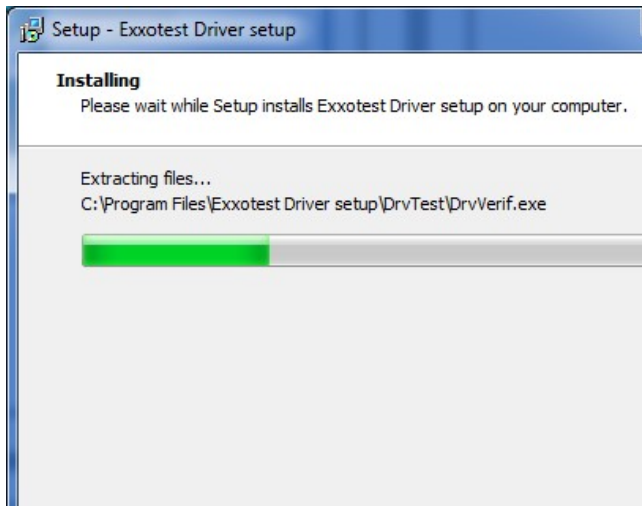


Confirm the file installation path and click on the "next" button



Click on the "install" button





The USB driver installation is finished. Click on the "finish" button to exit the installation wizard.

It is now possible to connect EXXOCLIM 3 to the PC to allow the windows operating system to detect the tool and finalise its installation.

6. RECOVERING AND PRINTING RECORDS

It is possible to print the records made with EXXOCLIM 3 in A4 format using the record and print management software LOGICLIM.

Configuration

When you first use the Logiclim application, you must enter information about the user of EXXOCLIM 3. This information will always be placed on the header of diagnostic reports and for the readings that are stored and printed.

The left side banner of the LOGICLIM application provides the following buttons:



Diagnostics: mode for recovering, storing and printing records made with EXXOCLIM 3



Update: mode for configuring and performing any updates to the Logiclim application and to EXXOCLIM 3



USB Capture: utility for dynamically copying the screen from EXXOCLIM 3 to the computer screen and capturing screenshots



Configuration: mode for configuring the information on the user of LOGICLIM and the advanced functions of Logiclim



Help: mode providing access to the user documentation for EXXOCLIM 3 in the PDF format.



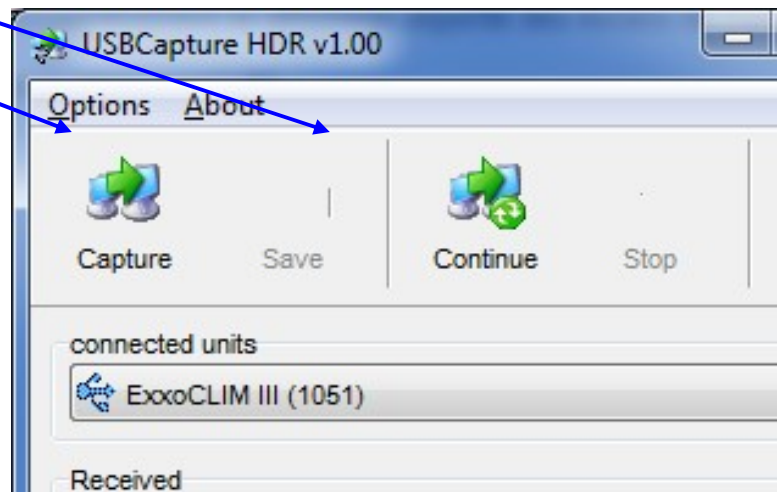
Exit: for exiting the LOGICLIM application

USB Capture utility


When EXXOCLIM 3 is connected to the PC, the USB Capture utility can display the screen for EXXOCLIM 3 on the PC's screen.

It provides 2 possibilities:

- Dynamic display
- Screenshot capture



EXAMPLE PRINTED PAGE

		ANNECY ELECTRONIQUE 1 Rue Callisto Parc Altaïs CHAVANOD - 74650 FRANCE Tel. : 04 50 02 34 34 Fax. : 04 50 68 58 93 courrier@exxotest.com www.exxotest.com	
AIR CONDITIONING DIAGNOSTIC REPORT			
Vehicle information			
Brand	PEUGEOT	Mileage	47525
Model	208	Registration	AB-123-CD
V.I.N.	VF5JHKJHJJ...		
Initial conditions			
OAT (°C)	23.1	HR (%)	61.8
Measured values			
HP (bar)	10.9	TK_HP (°C)	38.5
LP (bar)	2.2	TK_LP (°C)	11.4
SC (°C)	7.4		
OH (°C)	9.1		
IAT (°C)	10.8		
Diagnostic			
Diagnostic result	Bad result		
Possible cause of failures			
D007 - Fans speed unsuited / faulty pressure sensor D013 - Faulty expansion valve - blocked			
Comments			
Miscellaneous		Company stamp	
Repairer	Gaël PERAGOUX		
Tool	ExxoCLIM 3 S/N :1001		
Diagnostic date	29/07/2014 17:26		

OAT – Outside Air Temperature:

Air temperature outside the vehicle

IAT – Inside Air Temperature:

Temperature of the pulsed air within the passenger compartment of the vehicle

SC - Sub-cooling:

Sub-cooling expresses the difference between the temperature of the coolant fluid read on output from the condenser and the theoretical condensation temperature of R134A, calculated from the value of the high pressure in the air-conditioning circuit.

SH - Superheating:

Superheating expresses the difference between the temperature of the coolant fluid read on output from the evaporator and the theoretical temperature of evaporation of R134, calculated from the value of the low-pressure in the air-conditioning circuit.

Enthalpy:

The enthalpy is the calorific energy and the work performed according to the temperature and pressure of a fluid.

In the case of the coolant fluid R134A, the use of an enthalpy diagram lets us determine the liquid, vapour or saturated state of the fluid from its pressure and temperature.


Efficiency:

Mentioned in the diagnostic report produced by EXXOCLIM 3, the efficiency may take 3 different states:

- GOOD, if the temperature of the pulsed air measured during the acquisition phase is below the maximum acceptable temperature determined by the tool
- SATISFACTORY, if the temperature of the pulsed air taken during the acquisition phase does not exceed the maximum acceptable temperature determined by the tool by more than 2°C
- BAD, if the temperature of the pulsed air taken during the acquisition phase exceeds the maximum acceptable temperature determined by the tool by more than 2°C

SPECIFICATIONS

Specifications for the THR probe and EXXOCLIM 3:

Temperature THR probe	Range: -20 to +60°C Resolution 1°C
THR probe relative humidity	TH probe: 5 to 95% Resolution: 1%
Temperature TK probes	Range: -20 to +80°C Resolution 0.1°C
Pressure	Range: 0 to + 40 bars (high pressure) Resolution 100 mbars Range: 0 to +12 bars (low pressure) Resolution: 10 mbars
Power supply	By transformer 100-240V – 50-60Hz supplied 12Vdc – 1800 mA
Rechargeable batteries	 <p>Never replace the rechargeable batteries with non-rechargeable ones Only use rechargeable batteries with the following characteristics:</p> <p>5 rechargeable batteries of type AA (R6) Technology: Ni-MH (nickel–metal hydride) Voltage: 1.2Vdc Capacity: 2000 mAh Autonomy: 6h</p>
Environment	Usage temperature: from -20°C to +60°C Rechargeable battery charging temperature: 0 to +45°C Storage temperature: from -20°C to 60°C Reference temperature: 23°C +/-2°C



Do not expose the appliance to rain and splashes of water.

Do not use this appliance for taking measurements on the 230 V A/C network.

	 CONFORMITY DECLARATION	<div>Ref : DM297281-v1</div>
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Manufacturer: ANNECY ELECTRONIQUE
Address : Parc Altais – 1, Rue Callisto
 74650 CHAVANOD - FRANCE

Declares that the following product:

Brand	Model	Denomination
EXXOTEST	EXXOCLIM 3	Diagnostic tool for automotive air conditioning circuits R134a / HFO1234yf

Is in conformity with the requirements of the following European directive:

Electromagnetic Directive Compatibility 2004/108/CE from December 15 2004,

And complies with the applicable requirements of the following norms :

EN 61326-1 : 2013 (emission and immunity)

EN 301489-3 V1.6.1

EN 300220-1-V2-1-1.

EN 300220-2-V2-1-1.

Immunity with the transients according to ISO 7637-1 edition 2002

Electric materials of measurements, control and laboratory,
regulations relating to the E.M.C.

Chavanod on 18/07/2013

CEO, Stéphane SORLIN



ANNECY ELECTRONIQUE

Parc Altais - 1 rue Callisto - F 74650 CHAVANOD - Tel : 33 (0)4 50 02 01 01 Fax : 33 (0)4 50 68 58 93

S.A.S. au Capital de 276 000€ - RC ANNECY 80 B 243 - SIRET 320 140 619 00042 - APE 2651B - N° TVA FR 37 320 140 619