

CLT1 User Manual

Bedienungsanleitung/ Mode d'emploi/
Manual de Instrucciones/
Manuale utente/ Bruksanvisning



Table of contents

User manual	3
CLT1 set	4
General information and technical data	5
Description	6
Connection	7
Preparation and start-up	8
Preparations prior testing the vehicle	9
Connecting the battery	10
Prevent error codes with CLTSIM	10
Test procedure	11
Possible solenoid valve errors	11

User Manual

CLT1 – Test tool for externally controlled compressors

Dear Customers,

Thank you for making the decision to purchase the CLT1 from Adiator.








The CLT1 can be used for testing all clutchless, direct drive, externally controlled compressors, all year round, no matter how low or high the ambient temperature is.

The CLT1 has been designed “by technicians for technicians.”

Technical Application

The CLT1 will provide a direct power supply to the electronic control valve on all clutchless, direct drive, externally controlled A/C compressors without having to connect to the vehicle’s electrical system. Its simple, easy-to-use format will greatly save valuable A/C diagnostic time. The CLT1 allows you to expand your A/C diagnostic skills.

CLT1 Set

CONTAINS	Art. No.	DESCRIPTION
	CLT1	CLT1 central unit for the control of clutchless compressors. This unit enables you to control clutchless compressors from Denso, Sanden and Zexel.
	CLTHK	Hook with magnet clip.
	CLTUNI	Universal cable harness (2m) for connecting to any kind of clutchless compressor.
	CLT PWS	Power supply cable for connecting to the vehicle battery. 12V power supply is needed.
	CLTVAG	Connecting cable (2m) for Sanden (PXExx) compressors for Audi, Lamborghini, Seat, Skoda and Volkswagen.
	CLTDEN	Connecting cable (2m) for Denso (6SEU16: 7SEU16) compressors for BMW, GM, Jaguar, Lexus, Porsche, Land Rover, Mercedes, Rolls Royce and Toyota.
	CLTSIM	Solenoid valve simulator to prevent generation of error codes in the car system.

General Information and technical data

GENERAL INFORMATION

- Please read this user manual carefully to avoid mistakes during the test. It helps you preserve the test unit and the compressor.
- The user/technician has to have A/C knowledge.
- Adiator is not responsible for damage due to incorrect use of unit.

TECHNICAL DATA

- Voltage supply: 11 to 15 Volt
- Usage temperature: -10°C to $+40^{\circ}\text{C}$
- Storage temperature: -20°C to $+50^{\circ}\text{C}$
- Power consumption max. 3A
- Drives the compressor from 3 to 100%
- Weight: approx. 600g.

15 VOLT
+40°C
-10°C to

Do you have A/C knowledge?

Description



1. Button to increase compressor capacity.
2. Button to decrease compressor capacity.
3. LED indicating short circuit or interruption of the electromagnetic valve.
4. LED indicating excess high power input of the electromagnetic valve.
5. 8 LED tachometer display for changing control valve capacity - / +.

Connection



1. 2-pin plug port for the compressor control valve harness.

2. 3-pin plug port for the vehicle 12V battery power supply.



Preparation and start-up

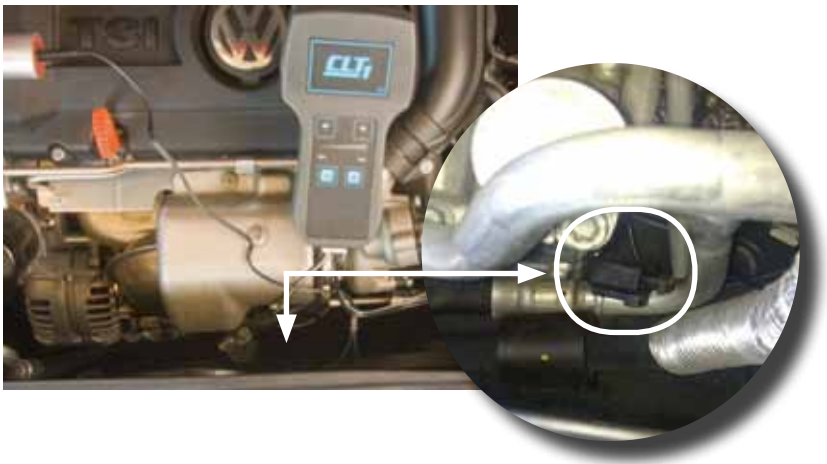


1. Power supply harness for connecting the hand unit to the vehicle battery.
2. Compressor control valve harness. 3 options available for control valve connector harness.

- Universal 2-pin Cable Harness, Pt No. CLTUNI, connects to all compressors.
- VAG-Group Harness, Pt No. CLTVAG, connects to VW Group.
- Denso Harness, Pt No. CLTDEN, connects to BMW, Mercedes, Toyota, etc.

Preparations prior testing the vehicle

- The vehicle should be at operating temperature.
- Set the air conditioning system to maximum cold.
- Set the speed of the blower on maximum.
- Only use vents in the centre of the car (close others).
- The airflow should be positioned and set at face vent level. Position a temperature probe in the centre allowing you to measure the air outlet temperature.
- Connect a gauge or A/C service station to allow you to view the operating low and high side system pressures.
- Disconnect the plug on the A/C compressor control valve or control valve harness. Connect the appropriate CLT1 Universal, VAG-group or Denso harness.
- Connect the simulator to the disconnected control valve plug.



Shows you an example of the CLT1 connected to a compressor.

General Advice

The 12V battery power supply should be maintained for the protection of the test equipment and the compressor.

Connecting the battery

Attach the 12V battery clamps to the vehicle battery ensuring the correct polarity connections; otherwise the CLT1 unit will be damaged.

This means:

Red = positive = plus = 30

Black = negative = ground = 31



Prevent error codes with CLTSIM

To prevent storing an error code in the vehicle's electronic fault code memory system, use the simulator (Pt No.: CLTSIM). Connect the simulator to the disconnected control valve plug.



The CLTSIM has a universal 2-pin connector that will fit all vehicle control valve harness applications. For vehicles with a single wire harness, connect one of the pin connectors to ground 31.

Test procedure

Double click the minus (-) button until the unit switches off. This is indicated by the LED tachometer display no longer being illuminated = zero compressor capacity load.

- Start & run the vehicle; then increase the idling speed to (~1500 U/min).
- Proceed by clicking the plus (+) button stage by stage (allowing a 15- second gap between each stage). This will start to load the compressor control valve mechanical capacity. Ensure that the vehicle A/C operating low & high side pressures are changing accordingly on your manifold gauges.
- Care should be taken, as the high side pressure can increase during testing with the CLT1, and the Quick start-up operation of vehicle control fans will interrupt correct testing of the A/C compressor's control valve.
- Always observe the A/C system's temperatures & pressures while testing with the CLT1.
- Between each increase, observe whether the compressor promotes stages accordingly.

Setting	Low Pressure	Outlet Temp.*
Maximum	1.6 +/- 0.5 bar	0°C +/- 3°
Minimum	3 +/- 0.7 bar	10°C +/-3°

* Note that the tolerances are compared against ambient temperature compressor load conditions, and must be evaluated in minimum & maximum stages while testing the compressor. The changes on the low pressure side should be similar to the setting changes on the CLT1.

Possible solenoid valve errors



LED "OC" indicates:

- Poor control valve connection
- Control valve complete interruption
- Control valve with a short circuit (smaller than 3 ohm)

LED "OL" indicates:

- Too high power consumption of the valve



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