NANOCOM
EVOLUTION

Legacy Vehicles covered by the Nanocom:

Defender:

- ➢ Defender TD5
- ➢ Defender Puma
- ➢ Instruments

Discovery II:

- ➢ Discovery TD5 (Diesel)
- ➢ Discovery (Petrol) V8 Motronic
- ➢ Instruments

R-Rover P38:

- ➢ GEMS (Petrol) 1994 – 1999
- ➢ Motronic V8 (Petrol) 1999 onwards
- ➢ EDC (Diesel) all years
- ➢ Instruments

Note: *If you are unsure of your P38 engine type, please see the images below to make a visual comparison...*

GEMS Engine

Motronic Engine

EDC Engine

Under the menus for the Defender (TD5 and Puma), Discovery II (TD5 and Motronic) and all 3 models of the P38, you will see an 'INSTRUMENTS' option, which saves having to go into the individual Vehicle menus to reach this function. The Instruments option allows the Nanocom Evolution to be used as an onboard instrument screen. This information shows details such as Engine Speed, Road Speed, Coolant temp, Engine Load etc, which displays live information as the vehicle is in motion/running.

The above vehicle menus then break down further into the actual ECU's for each model and their functions available (see below) Please also see each the individual ECU Help files for the various functions available here if needed...
http://nanocom-diagnostics.com/downloads

Defender:
TD5:
- TD5 Engine
- TD5 Engine Mapping
- AS10 (Alarm)
- Wabco ABS

Puma:
- Puma Engine
- Puma Instrument pack
- AS10 (Alarm)
- Wabco ABS

Instruments:
- TD5 Board Instrument
- Puma Instrument

Discovery II:
TD5:
- ECU Programming
- TD5 Engine
- TD5 Map
- SLABS
- Valeo BCU
- ACE
- D2 AUTOGEARBOX
- D2 AIRBAG

Motronic:
- Motronic
- SLABS
- Valeo BCU
- ACE
- D2 AUTOGEARBOX
- D2 AIRBAG

Instruments:
- TD5 Board Instruments
- Motronic Instruments

Range Rover P38:
GEMS:
- GEMS
- WABCO C (94-99)
- GS2.38.1 (Petrol up to 99)
- Airbag MPS1 (up to 96) [or up to 99 on NAS only]
- Airbag SPS1 (96 to 99 non-NAS only)
- Airbag SPS2
- EAS
- HEVAC
- BECM

Motronic:
- Motronic
- Wabco D (99 onwards)
- GS8.87.1 (99 onwards)
- Airbag SPS2 (99 onwards)
- EAS
- HEVAC
- Hella Cruise Control (Fitted as separate ECU- 99 onwards Motronic Petrol V8 model)
- BECM

P38 EDC:
- EDC
- Wabco C
- Wabco D (99 onwards)
- GS2.38.1 (Diesel up to 2002)
- Airbag MPS1 (up to 96) or up to 99 on NAS only)
- Airbag SPS1 (96 to 99 non- NAS only)
- Airbag SPS2 (99 onwards)
- EAS
- HEVAC
- BECM

Instrument modes-
- Motronic Instruments
- GEMS Instruments
- EDC Instruments

Function listing by systems and ECU's:

This is a full coverage list of the functions available for each system of each of the legacy vehicles covered by the Nanocom Evolution. Each function is explained later in this manual.

Fault codes:	Settings:	Inputs:	Outputs:	Utility Function:
GEMS for P-38	GEMS for P-38	GEMS for P-38	GEMS for P-38	GEMS for P-38
Motronic EMS	Motronic EMS	Motronic EMS	Motronic EMS	Motronic EMS
EDC EMS	EDC EMS	EDC EMS	EDC EMS	EDC EMS
TD5 EMS	TD5 EMS	TD5 EMS	TD5 EMS	TD5 EMS
PUMA EMS	PUMA EMS	PUMA EMS	PUMA EMS	PUMA EMS
Wabco ABS	Wabco-C	Wabco ABS	Wabco ABS	GS8.87.1
Wabco-C	Wabco-D	Wabco-C	Wabco-C	Wabco ABS
Wabco-D	SALBS	Wabco-D	Wabco-D	Wabco-C
SLABS	GS2.38.1	SLABS	SLABS	Wabco-D
GS2.38.1	GS8.87.1	GS2.38.1	EAS	SLABS
GS8.87.1	D2-Airbag	GS8.87.1	HEVAC	EAS
D2-Airbag	Airbag SPS2	EAS	AS-10	HEVAC
Airbag MPS1	EAS	HEVAC	BECM	HELLA Cruise cont.
Airbag SPS1	HEVAC	HELLA Cruise cont.	VALEO BCU	AS-10
Airbag SPS2	HELLA Cruise cont.	AS-10	ACE	BECM
EAS	AS-10	BECM		VALEO BCU
ACE	BECM	VALEO BCU		ACE
HEVAC	D2-Autobox	ACE		D2-Autobox
HELLA Cruise Cont.	VALEO BCU	D2-Autobox		
AS-10				
D2-Autobox				

Fault Codes:

The Nanocom covers fault code reading, clearing and saving for legacy vehicles. The function can be used to read and clear the codes per individual systems by entering a system from the vehicles menu and selecting Fault Codes.

The fault codes can also be saved in a txt. file format to an inserted SD-Card for viewing via a PC/laptop.

Settings:

The settings function is available under most of the ECU systems and allows the user to view and change various primary features of each system (where possible). For example, changing settings for the transmission type, engine and market for the engine management systems.

These settings can be saved, written live and reloaded, via the SD-Card, to the vehicle for quick changes and ease of sharing different setups between different vehicles, giving multi-vehicle owners and professionals a quick and efficient means by which to swap tried and tested system setups.

This function offers a very comprehensive range of control for most of the vehicle systems, offering the ability to govern settings such as air flow rate and long term idle in the engine managements and full height control for the covered EAS systems.
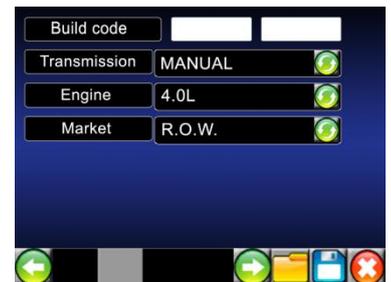

Inputs:

As with most of the systems on the legacy vehicles, the ECU's depend on having inputs supplied to them from various sensors and indicators. Inputs are classified as data received from those sensors and indicators, which is then processed by the ECU to determine control actions for those systems. These inputs can be viewed live for almost all of the legacy systems that use them.
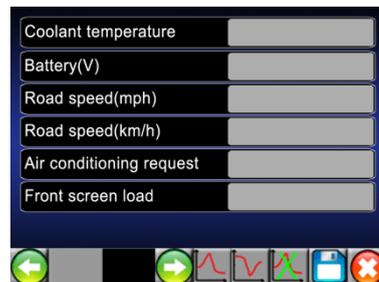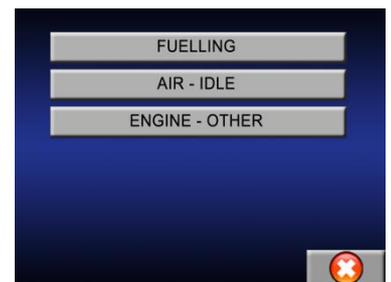
Peak Detection function:

During the dynamic and input reading, these buttons are available at the bottom of the screen, circled in yellow in the picture to the right →

This button shows the maximum peak at the time the data is being read.

This button will show the minimum peak at the time the data is being read.

This button resets the Peak reading back to standard input.

VALVES STATUS	
Front Left	
Front Right	
Rear Left	
Rear Right	
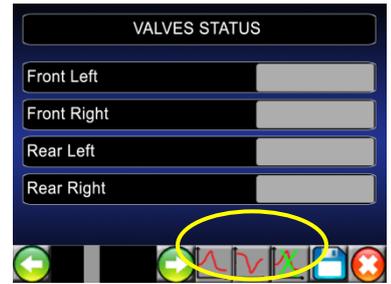
This function is very useful when doing comparison work after making changes or repairs to a system, as well as diagnosing faults.

Outputs:

The outputs function provides the user with the ability to change various direct features of certain systems. For example, looking at the GEMS Engine management for a Range Rover P-38, the output options are as shown in this picture →
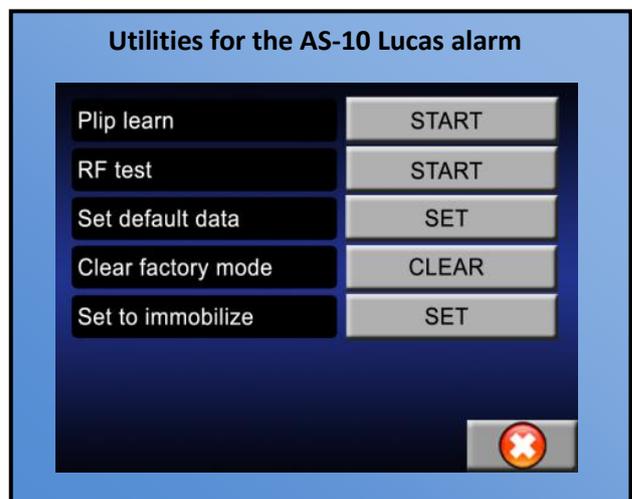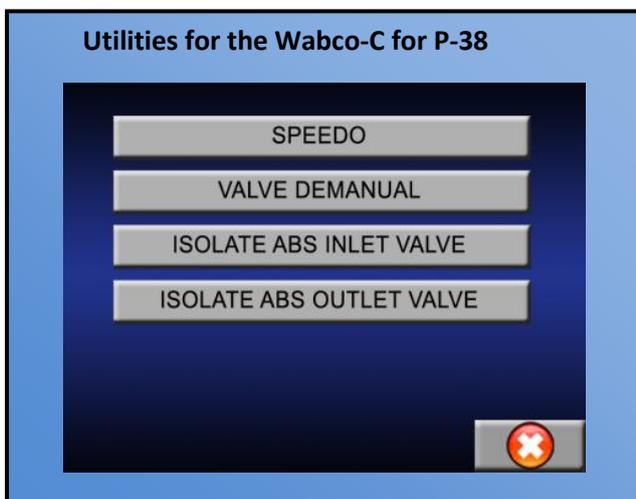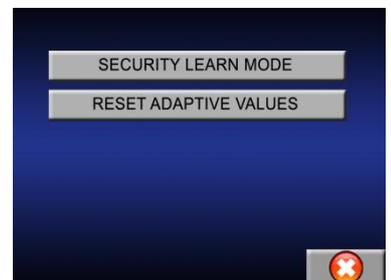
This function, that applies to most of the systems covered by the legacy classes of the Nanocom, allow such actions as to directly control the valves for the entire EAS system, Activate LCD testing for the HEVAC system and multiple, intricate features for the body control systems.

MIL lamp	OFF	OFF
O2 sensor heater	OFF	OFF
Fuel pump	OFF	OFF
Air cond. grant	OFF	OFF
Condensor fan	OFF	OFF

Utility functions:

These functions offer a varied range of access controls for many of the systems covered. These can range from odometer re-sync and service reminder reseting to security learning mode and adaptive value reset. This is the Utility of the GEMS engine management for the P-38 →

Functions under the utility sections for various systems will allow functions that can assist with installing new ECU's, syncronizing instrument pack and body control data and brake bleed to name but a few.

SECURITY LEARN MODE
RESET ADAPTIVE VALUES

Utilities for the Wabco-C for P-38

SPEEDO
VALVE DEMANUAL
ISOLATE ABS INLET VALVE
ISOLATE ABS OUTLET VALVE

Utilities for the AS-10 Lucas alarm

|	
Plip learn	START
RF test	START
Set default data	SET
Clear factory mode	CLEAR
Set to immobilize	SET

Miscellaneous functions:

There are also several additional features for systems across the covered range in the legacy classes that cannot be easily categorised, such as Key Programming for the Valeo BCU, the ability to read "events" and to "set country" for the AS-10 Lucas alarm system, Program records for the Motronic EMS and to clear the RF Memory and Outstation memory for the P-38's BECM.

Instrument mode:

The instrument mode displays live data inputs from various engine management sensors...
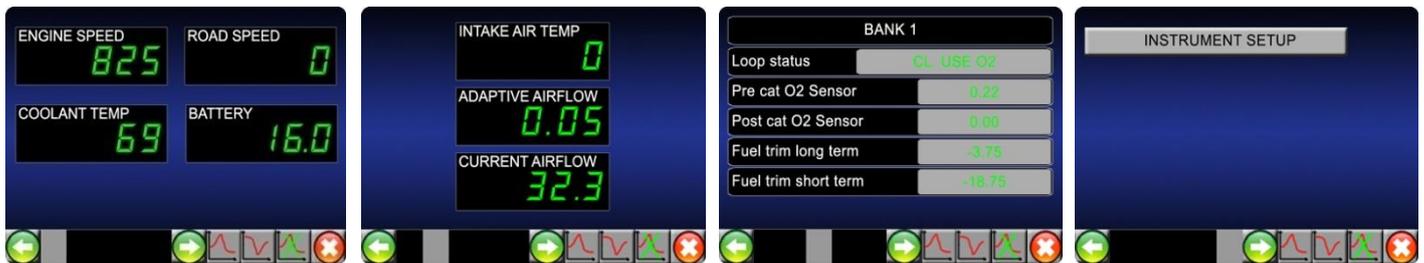
There are several pages of live data inputs for each engine type. The instrument mode is also home to the "peak detection function". The most common use for the instrument mode is to mount the Nanocom on the dashboard of a vehicle and being able to monitor key engine inputs while the vehicle has its engine running or while in motion, here is the NCOM30 dash-mounting kit that we can supply...

Note: that the Nanocom in the image shown to the right, has had its screen rotated 180 degrees to render the 15-pin OBD socket on The right hand side of the unit, for better reach to the vehicles OBD Socket in a RHD Vehicle.

TD5 Engine Map:

Read map from the ECU:

The TD5 Engine Map function gives the user the ability to read the current engine map file and save it to the onboard SD Card, either as an unencrypted .map file or as an encrypted .tun file.

Write map to the ECU:

This function also allows the user to write a new, edited or tuned map file back to the ECU. With the latest firmware version for the Nanocom (V1.12 or newer), the .map file is first written to the Nanocom flash memory to eliminate issues with the Read function, this guarantees that the file will not be corrupted during the writing function.

Write tuning map to the ECU:

This function writes protected Tuned .map files to the ECU. The writing can only be done if the VIN number of the ECU and the Nanocom I.D match those written in the .tun file itself, meaning that each .tun file will need to be custom written for each vehicle.

Set Country for Defender Models:

This function allows the users to set the vehicle settings to a specific country based on the legislation at the time when the vehicle was manufactured. For example, in some countries it's prohibited to have a horn louder than a given decibels limit so the vehicle needs to be set to that specific country.

The "Set Country" function might cause unwanted effects as other settings may be altered based on the pre-programmed settings contained in the Nanocom memory, like for example, the way the vehicle doors lock and unlock. It is most recommended not to use this function unless you're replacing the 10AS ECU with a new one and you don't have the previous settings saved.

All the settings contained in the "Set Country" function, can be individually changed and saved from the 10AS "Settings" menu. Making the changes from the "Settings" menu it's also useful because in the case that you're unhappy with the changed setting this can be quickly reverted to the previous state. It is most recommended to save the vehicle initial settings as a backup in case that something unexpected may happen. If the vehicle it's in perfect working condition and you're happy with the settings, then don't set the country.

Additional information and links:

At Blackbox Solutions, we strive to provide as much documentation about our products as possible, as well as member support forums and video demonstrations for all of our diagnostic equipment.

There is a documentation section available here:
http://nanocom-diagnostics.com/downloads

This page hosts a vast number of support documents from individual ECU guides to Nanocom Firmware upgrade guides through to complete Nanocom user guides.

Also, we have the Nanocom Support Forum which can be accessed at the following link:
http://forum.nanocom-diagnostics.com

The forum contains a huge amount of accumulated knowledge, hints and tips. As well as the constant and powerful support offered by other Nanocom owners and of course, the full BBS support team. This is our most powerful support tool.

You can also find many useful Tutorial and Demonstration Videos on our YouTube Channel, found here:
https://www.youtube.com/user/BBSP38/featured

We hope you enjoy your Nanocom Evolution!!!

V.1.30.