AVL CAMEO AUTOCAL™

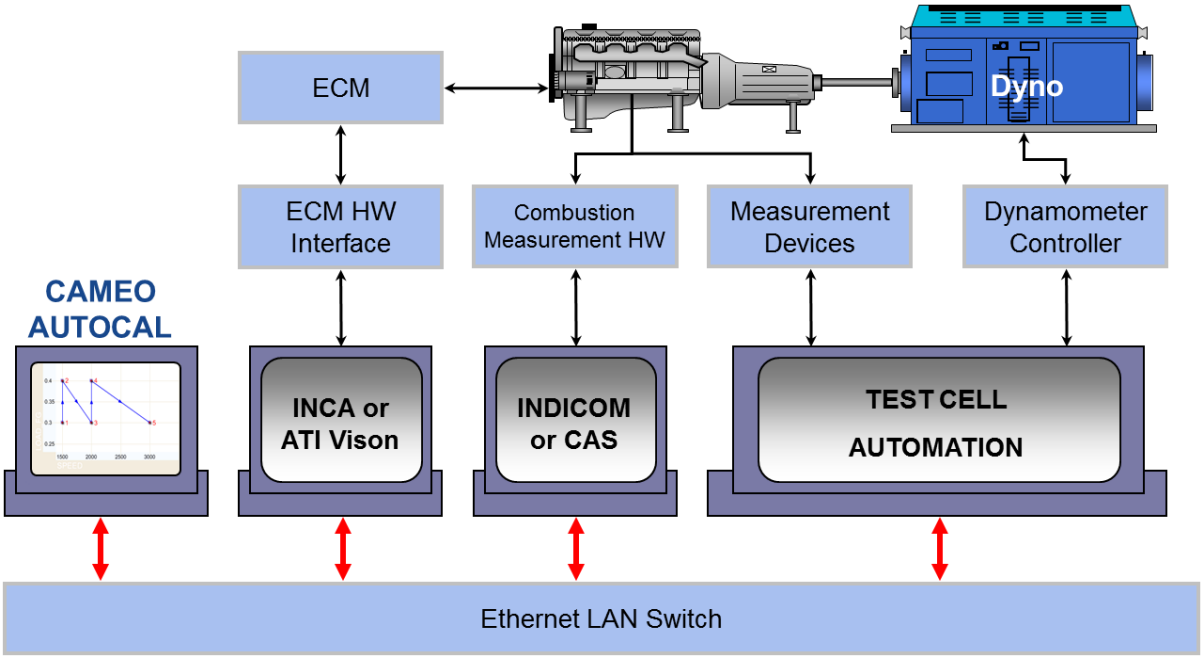
AUTOMATE YOUR CALIBRATION TEST SHEETS

CAMEO AUTOCAL is AVL's entry level solution for automated power-train calibration on engine test beds. It is derived from the AVL power-train calibration software CAMEO.

AUTOCAL integrates

- Test cell automation & measurement instruments,
- Combustion Measurement Equipment
- Engine control module interface via ECU Calibration Tool

It provides a single application for automation and data storage.

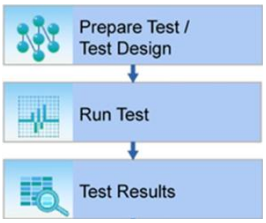


CAMEO AUTOCAL executes a test plan in association with an automation system, which is connected to the required measurement instruments and in association with a calibration system, which is connected to the engine control module.

- CAMEO AUTOCAL can automatically change the control mode on the test bed.
- CAMEO AUTOCAL visualizes and commands speed / load points to the test bed.
- CAMEO AUTOCAL changes and controls ECM parameters / maps via ETAS INCA or ATI VISION or any other ASAM MCD3 compliant software.
- CAMEO AUTOCAL takes measurements from test cell automation, calibration system and combustion measurement equipment simultaneously.
- CAMEO AUTOCAL can also command to start recorders on test cell automation, calibration system and combustion measurement equipment simultaneously.

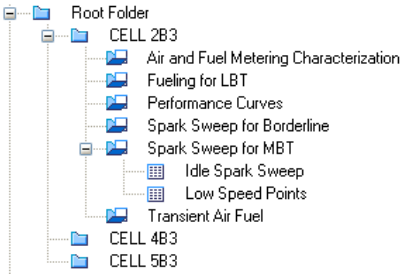
Functional Description

CAMEO AUTOCAL offers simple, easy to use features to support the calibration engineer in his data gathering.



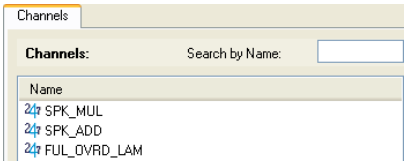
Project Administration

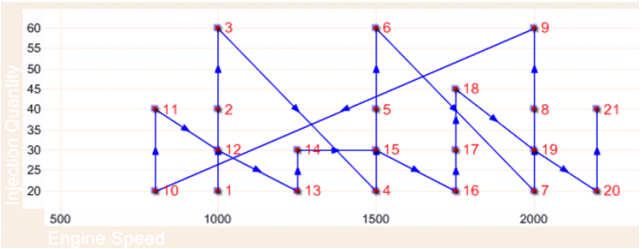
The project administration allows the user to manage and create different tests and connections to the test cell automation, calibration system and combustion measurement. It is possible to upload directly all relevant information (e.g. channel, macros) for the test parameterization. Whenever necessary a description file or manual entries can be used in addition. A project tree gives the user an overview and allows maintaining the tests.



Prepare Test

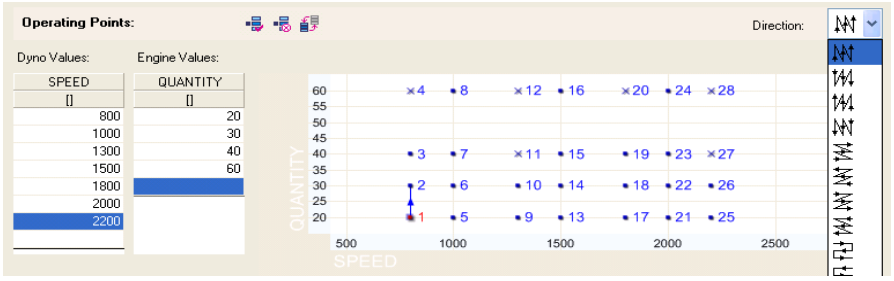
The Prepare Test section - your test plan is created using channels from test cell automation, calibration system and combustion measurement.



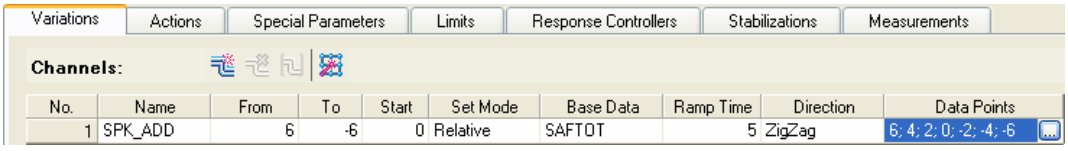


An operating point based test plan can be entered either by hand or using the operating point wizard.

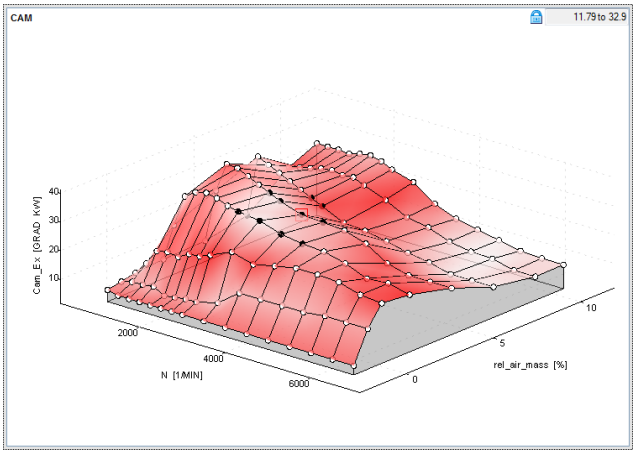
Import or paste the plan from any MS Windows program like MS-EXCEL. The order in the test plan can be switched.

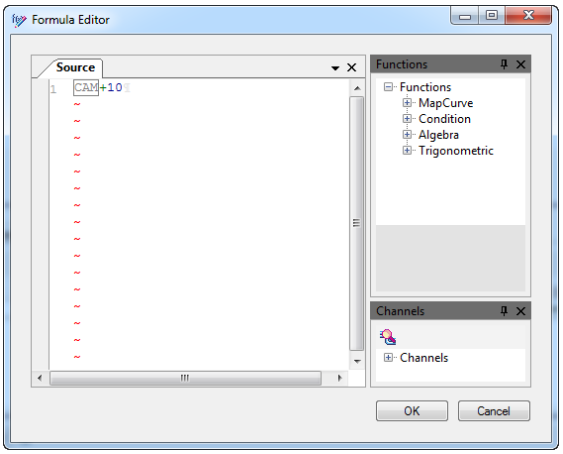


In each operating point a set of ECM parameters or maps can be changed by a given list or via automated generated combinations. A special feature allows the possibility to make changes relative to ECU measurement values. It is also possible to change some parameters on the test cell automation system (e.g. cut off injectors, command set point for conditioning unit etc.)

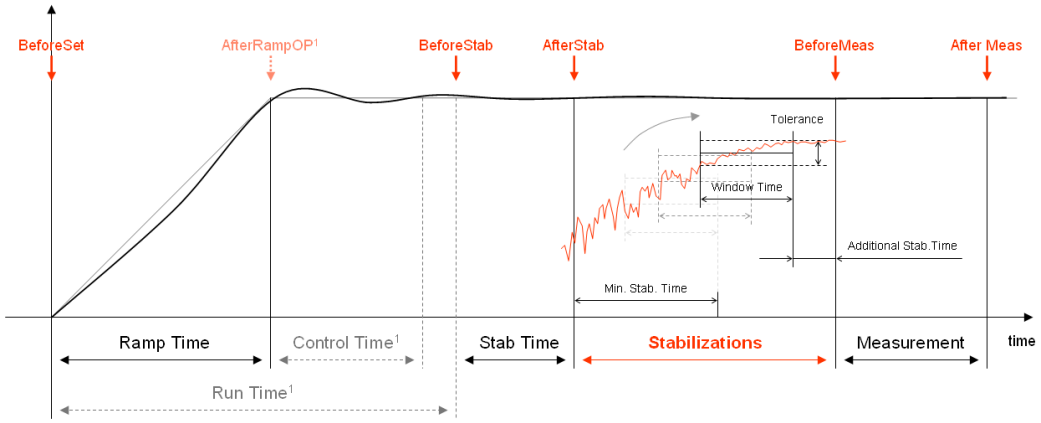


The usage of formulas and evaluation of maps allows the user to generate very flexible tasks.





A stabilization features ensures high quality measurement data e.g. exhaust and emissions are stabilized before taking the measurements or activating a recorder.



Special commands are offered to activate ECU overrides and initialize with current readings (e.g. switch on the spark advance override an initialize with current absolute spark advance).

CAMEO AUTOCAL is able to execute given macros on the test cell automation (e.g. purge your exhaust gas analyzer.)

Parameterized Limits enable the usage of automation also in unknown areas, for example:

- While advancing the spark, the knock intensity exceeds a certain value and then the spark is not increased beyond that point. The test is continued by retarding the timing and continuing to the next point.
- If exhaust temperature limits are violated, return to safe (starting) operating condition.

Run Test
CAMEO AUTOCAL runs an automatic execution of a user defined test plan and supports the engineer with all important information concerning the calibration progress.

Test Results
All test results can be stored and viewed within the database.
With the label translator name and units can be adapted to the customer needs.
The test results can be exported to a text file or directly to MS-EXCEL.

Typical calibration tasks performed by AUTOCAL

- Spark Sweep for MBT
- Spark Sweep for Borderline
- Fuelling for LBT
- Performance Curves
- Transient Air Fuel
- Air and Fuel Metering Characterization

Compatibility

Test bed:
Digalog Cellmate II and III test beds, DSG DaTAQ Pro, ONO SOKKI,
ASAM ACI 1.1 / 1.2 / 1.3 compliant (PUMA OPEN, STARS, TCM, iTest, MORPHEE, TORNADO …)
Any other test bed which integrates AVL's easy to implement generic interface.

ECM calibration system:
ETAS INCA or ATI VISION or any other ASAM MCD3 compliant software.

Combustion measurement equipment:
AVL IndiCom
A&D CAS

Upgrade

CAMEO AUTOCAL can be upgraded to CAMEO TEST & MEASURE which offers more functionality for bigger test fields and several extensions which are useful for Gasoline and Diesel engine calibration.