



AVL DIX
MODULAR DIAGNOSTIC AND
EMISSION SYSTEM

FUTURE SOLUTIONS FOR TODAY

AVL
D I T E S T



AVL AND AVL DITEST.

Technical versatility ingeniously wed with forward-looking perspectives

Success is contagious – worldwide.

Incomparable technologies are being incorporated in vehicles to an unprecedented extent. Crucial to their success is the dynamic interplay of all pulses and signals... and constant development. After all, the pace of technological change is faster than ever before.

Our major task is to ensure perfect motion for the entire lifetime of the vehicle. Our weakness for technologies that readily meet all requirements is our strength in these efforts.



Set priorities and forget about compromise! Experience dynamism and a passion for new ideas!
All masterfully combined with clear-cut objectives.
Use our success as a tool for your own advancement.

Moving Performances

Our voyage of systematic research into the technical world of motor vehicles began more than a half century ago with the establishment of AVL in Graz, Austria. Our core activity has remained unchanged ever since: to develop engines and testing and measuring equipment on a large scale.

With our aspiration to perfection and to a pole position world-wide, it is no wonder that AVL in Graz has become a central hub for all renowned automobile manufacturers.

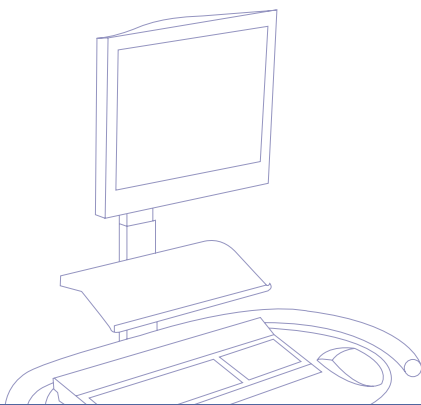
The Corporate Philosophy of AVL

A holistic view of the automotive world is essential to developing a vehicle to perfection and to ensuring its flawless operation in daily use. Guided by this principle, AVL DiTEST accepts the challenge of equipping workshops and test centers with high-tech diagnostic systems destined to set the standards of tomorrow. The result of these efforts is optimum performance based on individual service and revolutionary AVL technology. Expertise gained in our over fifty-year love affair with technology has allowed us to achieve unsurpassed precision.

FROM IDEA TO PRACTICAL REALITY

AVL DiTEST is committed to the entire lifetime of a vehicle.

All workshops and test centers can be even more successful now, with AVL DiX. This modular diagnostic and emission platform for exhaust emission testing and electronic health checks meets the toughest requirements and delivers unsurpassed analyses. Your customers' satisfaction is guaranteed.



Set your goals. Then consistently refine technologies and assure functionality, always with an eye on day-to-day practicality.

Module	Station 1 AVL DiX Diagnosis	Station 2 AVL DiX Gas	Station 3 AVL DiX Smoke	Station 4 AVL DiX Com	Station 4 AVL DiX Com mobile	Station 5 AVL DiX Com-Diagnosis	Station 6 AVL DiX Com-Diagnosis Pro 2	Modules	Station 1 AVL DiX Diagnosis	Station 2 AVL DiX Gas	Station 3 AVL DiX Smoke	Station 4 AVL DiX Com	Station 4 AVL DiX Com mobile	Station 5 AVL DiX Com-Diagnosis	Station 6 AVL DiX Com-Diagnosis Pro 2
Diagnosis								Accessories							
AVL DiOBD 880 scan box set	•	•	•	•	•	•	•	AVL DiX vehicle information system	○	○	○	○	○	○	○
AVL diagnostic software	•*	○	○	○	○	•*	•*	PC - Slim line	•	•	•	•	-	•	•
AVL DiScope 802	○	○	○	○	○	○	•	Laptop or tablet PC	○	○	○	○	○	○	○
								Monitor 15" TFT	•	•	•	•	-	•	•
								Double monitor 15"TFT	○	○	○	○	-	○	○
EXHAUST EMISSION ANALYSIS								AVL DiX inkjet printer	•	•	•	•	○	•	•
AVL DiLink 480	○	•	•	•	•	•	•	AVL DiX laser printer	○	○	○	○	-	○	○
AVL DiGas 480 petrol module	○	•	○	•	•	•	•	AVL DiX device cart	•	•	•	•	-	•	•
AVL DiSmoke diesel module	○	○	•	•	•	•	•	AVL DiX mobile device case	-	-	-	-	•	-	-
AVL DiSpeed 490 internal	○	•	•	•	•	•	•	AVL DiX Module drawers	•	•	•	•	-	•	•
								OBD Cable	•	•	•	•	•	•	•
Functional Overview								Adapter pin set – all-purpose cable	•	○	○	○	○	•	•
Exhaust emission analysis for petrol with E-OBD	○	○	•	•	•	•	•	Various cables for specific vehicles	○	○	○	○	○	○	○
Exhaust emission analysis for diesel with E-OBD	○	○	○	•	•	•	•								
Exhaust emission analysis for diesel/petrol with E-OBD	○	○	○	•	•	•	•								
E-OBD diagnosis	•	•	•	•	•	•	•								
Control equipment diagnosis	•	○	○	○	○	•	•								
Vehicle information systems	○	○	○	○	○	○	○	Other accessories on request	○	○	○	○	○	○	○

○ optional • standard - not supported * Software Care Agreement or purchased software

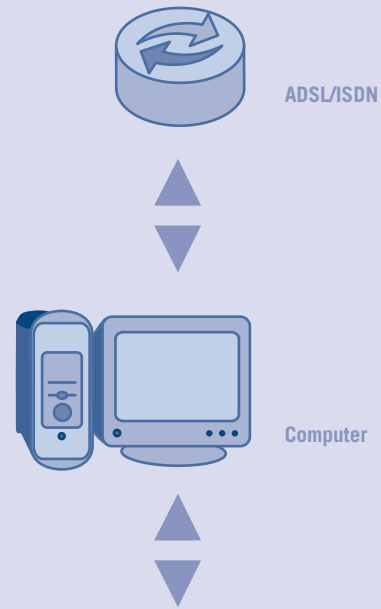
Any Diagnosis at Any Time

By constantly innovating and responding efficiently to customer requests, AVL DiTEST has carved out a leading position for itself in international markets with its diagnosis and Emission Systems. Technology changes all the time but the motivation of AVL DiTEST remains the same: to guarantee mobility.

A Promise of Versatility

At the heart of the AVL DiX station is the basic AVL DiLink module, expandable with various DiX modules hooked up via USB and RS 232. All further modules can be connected to the AVL DiLink as the heart of the AVL DiX. There is a connecting cable for convenient connection of your PC.

Keyboard navigation is available, where desired. You can update the software online or using CD-ROMs. The AVL modules AVL DiOBD and AVL DiSPEED 490i can also be integrated effortlessly. With AVL DiX, the complex world of diagnosis is suddenly very simple indeed!



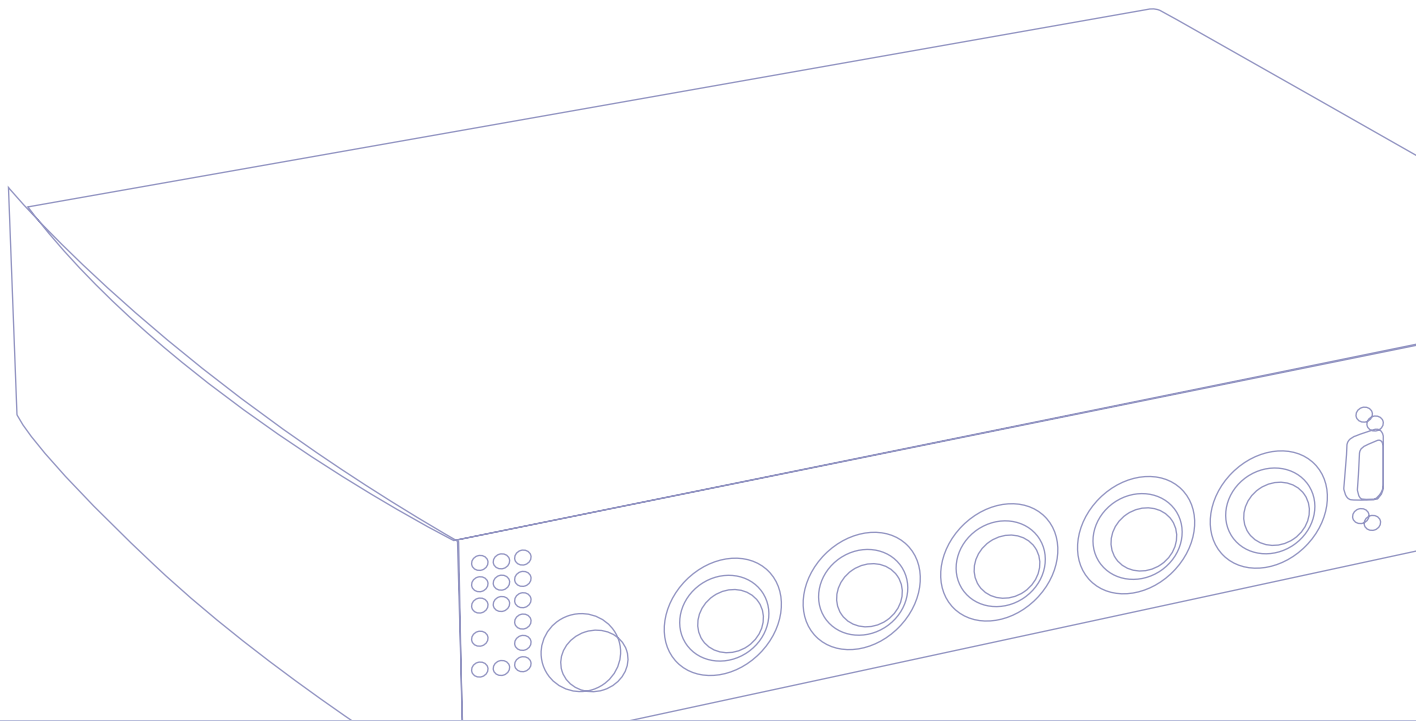
The Parts Used in Creating the Whole: The AVL DiX Modules

Regardless of what you need for daily operations, you can depend completely on reliable AVL DiTEST quality. Select what you need and add other modules whenever you wish!

- AVL DiLink 480
- AVL DiSpeed 490 internal or external
- AVL DiGas 480
- AVL DiSmoke 480
- AVL DiX AU-Software
- AVL DiX Diagnosis Software
- AVL DiOBD 880
- AVL DiScope 802
- AVL System Trolley
- AVL DiX Mobile Transport Unit
- Further modules under preparation

Invaluable Services

To analyze and remedy errors more quickly, you can call the AVL DiX service line. It covers everything from installation to daily diagnostic support and maintenance.



**Take off into the modern world of vehicle diagnosis.
Keep pace with the future always and everywhere.**

A Great Connection from Day One

AVL DiX offers you all the options you need for integrating your station into an existing IT network. Integrated interface with the “AU-Plus” QA system is just one of those options. Professionalism is a top priority in IT integration as well. From storage for Emission test certificates and local and data network security to the automatic resumption of data security in the case of a network failure.

Intelligent Communication

Tried and tested workshop equipment alone is not enough. To make it complete, an application must have a communications connection to the business management software. That is why the AVL DiX System is certified as an ASA network and assures the compatibility of all modules with the software system. As a result, all data flows are optimally monitored, co-ordinated and stored using standardized methods.

RECOGNIZING NEEDS AND MEETING THEM.

AVL DiX is well aware of the requirements diagnostic systems have to meet in everyday practice. The individual modules are attuned to each other to assure full functionality and to create an unbeatable system. Select a workshop tool that is fully mature. AVL DiX – the right step for gaining a powerful edge on the competition.



Opt for AVL DiX and enjoy the best in technical communication.

Voltage supply from the mains

Rated voltage	230 V
Voltage range	95 ... 255 V
Frequency	47 ... 63 Hz

Ambient conditions

Operating temperature	+5 ... +40 °C
Storage temperature	-20 ... +60 °C
Relative humidity	10 ... 90 % non-condensing

Measurement parameters

Measurement parameters	Measurement range	Resolution
RPM	300 ... 10,000 rpm	10 rpm
Oil temperature	-10 ... 150 °C	1 °C
Ignition angle (TDC sensor)	± 90 °KW	0,1 °KW
Ignition angle (stroboscope)	0 ... 60 °KW	0,1 °KW
Closing angle	0 ... 100 %	0,1 %

Interfaces

Voltage supply for AVL modules	24 V direct current
USB Type B	PC connection
USB Type A	Dongle
6 x USB Type A	AVL DiGas 480 USB devices
RS232	AVL DiOBD 4000 AVL DiSmoke 480

AVL DiLink 480

Establishing Connections.

Wherever communication between the hardware and software must function flawlessly. AVL DiLink 480 establishes a connection. The central interface picks up external and internal sensor signals and carries out signal conditioning. It is professionally supported by probes and transducers that receive emission relevant auxiliary variables

Leading the pack with a perfect performance.

Every module is as multi-purpose as its constituent parts. You have your choice of a wide range of direct testing and measuring devices that utilize the AVL DiLink:

- TDC sensor
- Optical transducer
- AVL DiSpeed 490 (internal or external)
- Stroboscope
- Cable Set for the AVL Emission Tester, 4000 Series
- Clamp-on transducer
- Trigger clamp
- Oil temperature probe and others



AVL DiSpeed 490 internal

Experience the ultimate in dynamism.

AVL DiSpeed is synonymous with all-purpose speed measurement for petrol and diesel engines. Our goal at AVL DiTEST as regards speed measurement is simple: Our devices have to make the work in automotive workshops and test centers easier and must comply with the latest standards. For that reason, we hone the technology until all requirements are met. Speed measurement with AVL DiSpeed 490 can be integrated as an option in the AVL DiX. This means the "DiSpeed sensor" can be connected directly to the AVL DiLink.

The advantages that give you the technical edge on your competitors:

- No settings required for engine configuration
- Easy mounting with integrated permanent magnets
- Capability assured in future as the device operates independently of any electrical engine signals
- For static and dynamic speed measurement
- Online update possible



AVL DiSpeed 490 internal

Engine	4-stroke diesel and petrol engines	Voltage supply	12 V über AVL DiLink
Speed range for diesel engines	400 ... 6,000 rpm	Operating temperatures	
Speed range for petrol engines	400 ... 8,000 rpm	Analysis unit	0 ... +50 °C
Speed sensor range	Idling: 400 ... 1,200 rpm High speed: 1,700 ... 6,000 rpm	Sensor cable	0 ... +65 °C (Magnetic flow: -20 ... +125 °C)
Signal inputs	Combination AVL sensor for air-borne and structure borne noise	Storage temperature	-20 ... +60 °C
Signal outputs		Relative humidity	< 90 %, non-condensing

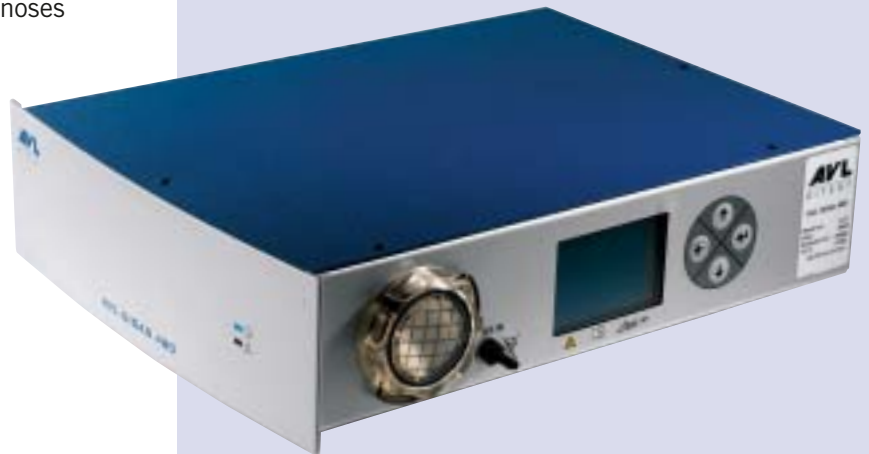
AVL DiGas 480

No-compromise Diagnosis.

We begin where others leave off, because we want to know exactly what's what, for your sake. Exhaust emission tests and engine checks are confidential matters. That is why we provide AVL DiGAS 480, a 4-gas and 5-gas tester module for conducting emission tests and engine diagnoses on petrol engines.

Precision in diagnosis assumed.

- IR measuring bench according to OIML R99 Class 0
- Minimal maintenance required, calibration just once a year
- Emission sensor can be used in the case of extreme condensation
- Vertical or horizontal operation
- Use as a mobile or stationary unit
- Integrated display
- Optional NO_x measurement



Optimum performance is a matter of course at AVL DiTEST. Intelligent technology monitors the life of motor vehicles.

Technical data:

Measured variables	Measurement range	Resolution	Accuracy
CO	0 ... 10 % in vol.	0.01 % in vol.	< 0,6 % in vol.: ± 0,03 % vol.
CO ₂	0 ... 20 % in vol.	0.1 % in vol.	≥ 0,6 % in vol.: ± 5 %
HC	0 ... 20,000 ppm in vol.	≤ 2,000: 1 ppm in vol. > 2,000: 10 ppm in vol.	< 200 ppm in vol.: ± 10 ppm in vol. ≥ 200 ppm in vol.: ± 5 %
O ₂	0 ... 22 % in vol.	0.01 % in vol.	< 2 % vol.: ± 0,1 % in vol. ≥ 2 % vol.: ± 5 %
NO	0 ... 5,000 ppm in vol.	1 ppm in vol.	< 500 ppm in vol.: ± 50 ppm in vol. ≥ 500 ppm in vol.: ± 10 %
Lambda	0 ... 9,999	0.001	Determined from CO, CO ₂ , HC, O ₂

Supply

Voltage supply	Via AVL DiLink 480, 11 ... 25 V DC
Power input	Approx. 40 W

Miscellaneous

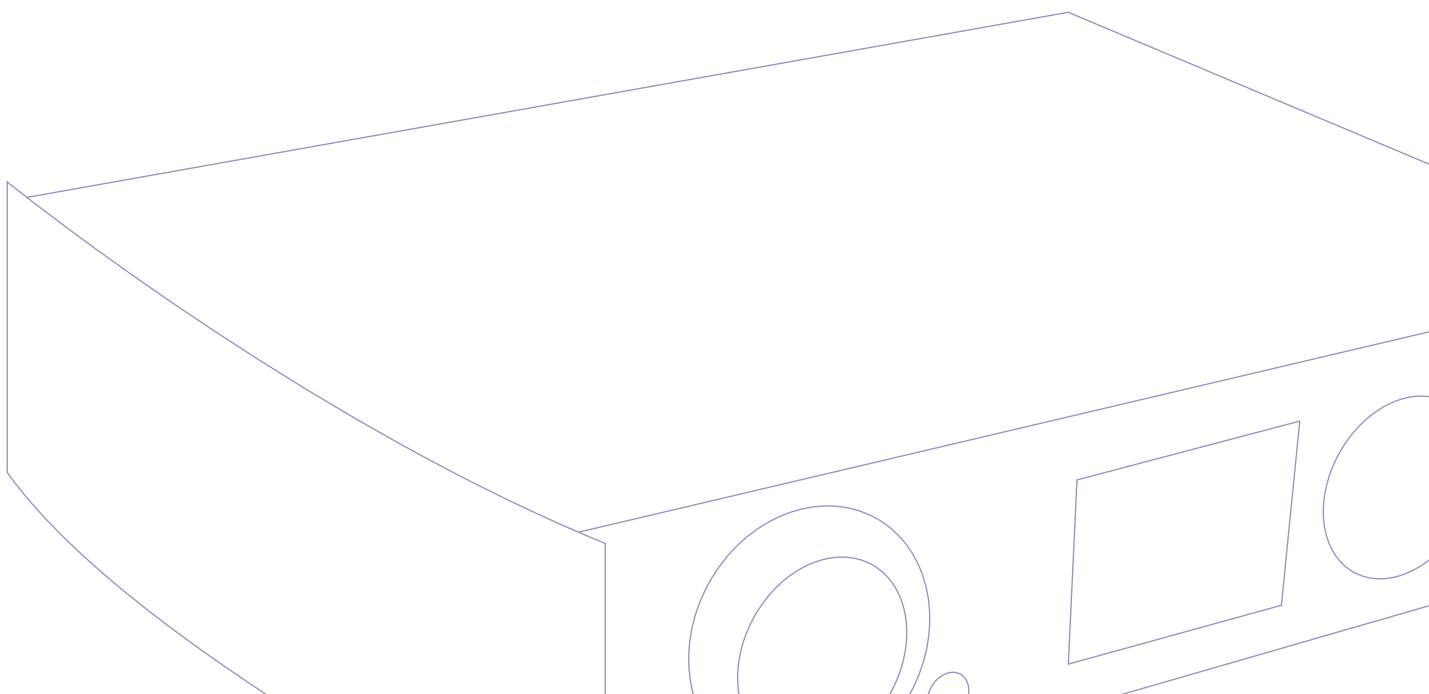
Warm-up time	max. 7 min
Operating temperature	5 ... 40 °C

AVL
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AVL DILINK 480

AVL
DITEST

AVL DIGAS 480



AVL DiSmoke 480

Ideas of Tomorrow Available Today.

Are you looking for an opacimeter with a diagnostic function for diesel engines? Here it is! The AVL DiSmoke 480 offers a fast and modern exhaust-gas opacity measuring chamber with an ultra-short warm-up time.

You want to know even more?

No problem. Here's an overview.

- High accuracy
- Patented linearity test
- Compact, light-weight opacity measuring chamber requiring minimal maintenance
- Usable as mobile and stationary unit
- Short warm-up time
- One probe for all exhaust pipe diameters (passenger cars, trucks)
- Adapter for attachment to exhaust pipes above truck cabin
- Quick response time due to minimal diesel measurement chamber



Technical data:

Measurement method	Extinction measurement
Operating temperature	+5 ... +40 °C
Storage temperature	-20 ... +60 °C
Relative humidity	Max. < 90 %, non-condensing
Voltage supply	Via AVL DiLink 480
Power input	Approx. 55 W (with heater)
Dimensions	395 x 285 x 136 (W x H x D)
Weight	3.5 kg

Opacity chamber

Chamber heating	100 °C	
Measured length	215 mm ± 2 mm	
Maximum exhaust gas temperature	200 °C	
	Measurement range	Resolution
Opacity	0 ... 99.9 %	0.1 %
Absorption (k-value)	0 ... 99.99 %	0.01 l/m

AVL DIX EMISSION SOFTWARE.

New Insights.

AVL DiX covers every workshop requirement. That includes perfect software, tailored to the actual technical conditions and easy to operate for users. We co-operate with Microsoft on development, so you can be sure of equipment that is fit for meeting future requirements.

Facts Speak For Themselves.

- Less time required thanks to optimized testing procedure
- Clear guidance through the testing procedure with the help of familiar navigation elements
- Logical and simple operation for rapid exhaust emission analysis
- Comfortable operation with mouse or keyboard

You rely on quality. So do we.

- "AU-Plus" software can be integrated to assure high quality standards in the workshop.
- Individual switching of hardware and software components (dongles)
- Subsequent access to records of test results
- High level of data security

A system in which every detail has been carefully thought out to assure fast analysis. And operation is a breeze because everything is so simple. Flexible retrofitting guaranteed for years to come.



We are moving into the future. Why not join us?

- Updates can be carried out on site by the user.
- Technology fit for the future
- Involvement of renowned German testing organizations and vehicle manufacturers
- Simple integration of hardware modules that become available at a later date
- Compact systems that can be deployed quickly

AVL DIX DIAGNOSIS SOFTWARE.

Vehicle diagnosis today involves substantially more than just exhaust emission tests and engine inspections. What is called for is comprehensive analysis.

Results are what count.

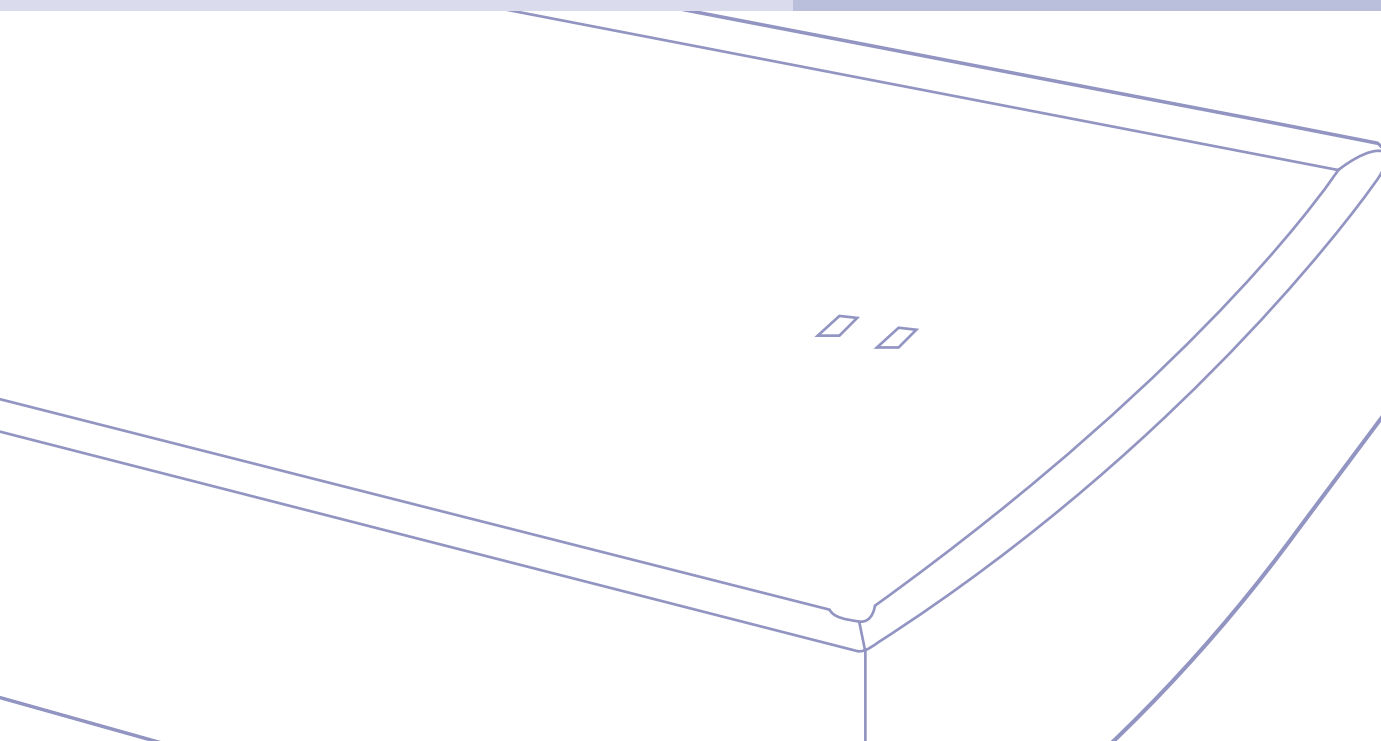
Comprehensive analyses are central to vehicle diagnosis today. Vehicles have become such complex entities that they can only operate flawlessly if there is a perfect interplay between all systems: mechanical, hydraulic, electrical and electronic.

Today's New Generation of Vehicles

To conduct a diagnosis of a vehicle, you have to have precise knowledge of all the various areas of that vehicle and how they work together. AVL DiTEST can help you do just that, with the appropriate devices for whatever diagnosis is needed.



Diagnostic systems with compelling details. Always and everywhere. The results speak for themselves.



AVL DiX is more than just a solution.

AVL DiX is a comprehensive platform consisting of all important diagnostic tools for daily use. That means you have just the tool you need whenever you need it. The AVL DiX Information System has so many impressive features: measured and set-point values, flow charts, maintenance information and a detailed system description, plus much more.

Someone You Can Always Turn To

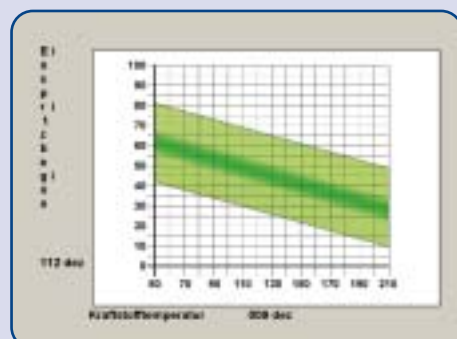
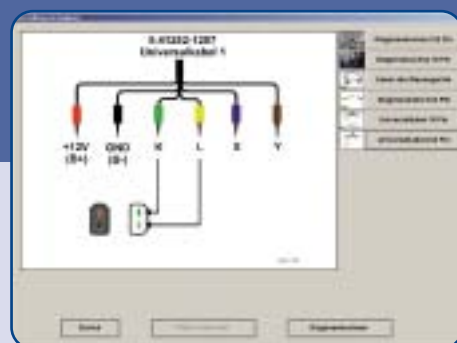
Would you like further information on a measurement application or a specific setting? Whatever you need, you can always count on support from the AVL DiX Service Line.



The Answers to All Your Questions

With AVL DiX error screening, all electronic components and the interior vehicle wiring is checked, and the problem is then pinpointed and localized. This is done with assistance from individual modules such as the AVL DiScope and the AVL DiX exhaust emission modules for diesel and petrol engines.

The superb reliability of the AVL DiX system frees you up to concentrate on diagnosing and remedying the error. This eliminates further error sources, i.e. errors caused by using the improper diagnostic tool.



PLUMB THE DEPTHS. WITH AVL DiOBD 880.

Electronic solutions are customized systems. And each vehicle has its own specific electronic architecture. This is where the AVL DiOBD 880 comes in, as a multifunctional module for diagnosis and exhaust emission analysis.

AVL DiOBD 880.

Compelling Details in Every Class.

High tech is the basis for complex diagnostic solutions in automotive applications. Perfect functionality is assured by the careful implementation of forward-looking solutions for the widest variety of motor vehicles.



Brilliant Diagnosis: For Quality and Efficiency

Exact Analysis Guaranteed

- For use in nearly all vehicles, from Alfa Romeo to Volkswagen
- Analysis of engine, safety and comfort electronics, e.g. ABS, air conditioner, engine management and central lock, wg
- E-OBD protocol
- Read-out and deletion of error codes
- Reading of measured values
- Actuator test
- Automatic control equipment test
- Service functions
- Tyre pressure check

Functions are constantly being added to

TOTAL PERFORMANCE.

Modern automotive electrical and electronic systems deserve a universal diagnostic machine. AVL DiScope 802 is just the answer. Modular and flexible in use, it is the best solution for the diagnosis of engine test functions and component diagnosis.

AVL DiScope 802

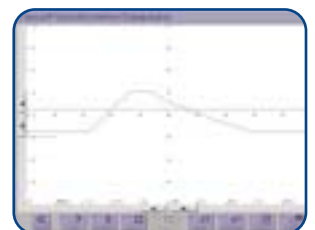
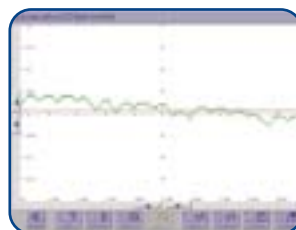
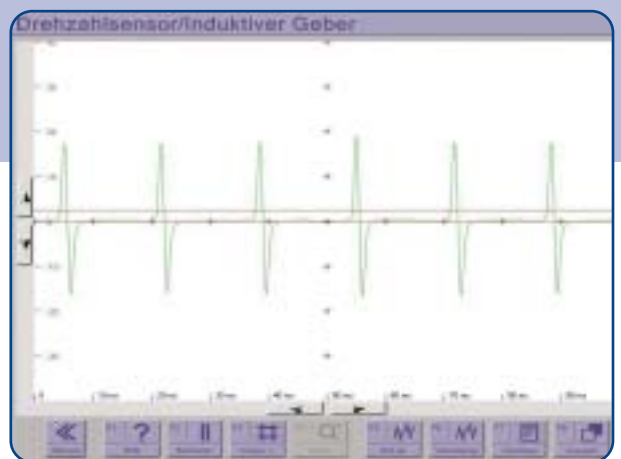
Versatility Through and Through

The AVL DiScope 802 is a digital, two-channel scope module for recording signals in automotive applications.



Masterful Analysis Made Easy

- Designed for all types of cars
- 50 MHz bandwidth
- Scope setups for all automotive tests
- User-friendly software user interface
- Signal storage function
- Wiring harness included
- Reference curves



A PLACE FOR EVERYTHING AND EVERYTHING IN ITS PLACE.

AVL DiX System Trolley

The AVL DiX System Trolley is just what you are looking for and totally in keeping with the idea of modular design. All you have to do is decide what you prefer for daily use: a w. v. or a mobile one.



Workshop Version

- Multifunctional storage room for PC, printer, probes and cables
- Modules with variable positioning
- Handrail
- Surface for holding vehicle certificates and small parts
- Flexibly modular

Mobile Model

- Ready for operation in no time at all
- Functional cable and probe guide
- Sturdy portable unit
- Flexible modular design
- Additional features for easy transport





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