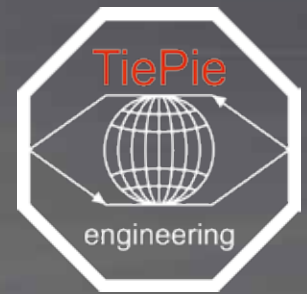


TiePie
engineering

DIAGNOSTIC SPECIALISTS



ATS5004D Automotive Labscope

The new generation diagnostic measure tool



Labscope



Test leads (3mtr)



Secondary Ignition Pickup



Current Clamp 600A



10:1 attenuators



Current Clamp 10mA up to 80A



Trigger button/G-sensor



Crocodile/gator clips



Needle probes



Atis DVD

- Advanced Automotive Labscope for a quick and accurate fault diagnosis
- All relevant information for a proper diagnosis is present in the ATIS software
- Very powerful automotive labscope for a precise and clear signal display
- Various smart measuring options can be added to the diagnostic tool
- With all add-ons you will have a complete compact size measuring kit

ATS5004D for a quick and accurate diagnosis

TiePie engineering has made another huge step forward with the introduction of powerful oscilloscope software in combination with the ATS5004D automotive labscope. No matter if you come across easy, difficult or very hard to find faults, the ATS5004D labscope has got the potential to assist the diagnosis technician to the max by locating the cause of electrical or electronic faults in vehicles. TiePie engineering offers the user of this kit a lot of technical know how within the ATIS information software in which all required oscilloscope settings are already present. The user only has to select the vehicle, or the component and all relevant information is within reach. First of all there are always an electric wiring diagram and pictures of what the components look like and where they are located within the vehicle. ATIS will also give you full detail of how to connect the scope and how to perform the measurement. Each component possesses a reference signal (what the signal should look like) that you immediately can relate the measured signal to.



Every selected component is loaded with its required oscilloscope setting so you never have to adjust the voltage scale, trigger level or time base. The ATS5004D therefore is a diagnostic tool that really helps you further and offers you the opportunity to focus your valuable time on the actual diagnosis. You will appreciate our product for its elaborate functions, speed, professionalism and useful automotive information.

The diagnostic tool for the future

Our clients have worked with the automotive labscope for more than 15 years now, these days the 50 MHz labscope was way ahead of its time. Since then this diagnostic tool has become more and more advanced and today we are still ahead in automotive diagnostics. Everyone who will purchase the new diagnostic labscope will be able to use it for at least 10 years. The labscope is that powerful and clever that it will be able even to catch up with the future demands. One of the biggest advantages is that the

diagnostic technician only has to learn to use this elaborate tool once and then will be able to use this tool for years. Because of the modular approach in combination with the huge potential of the labscope many more applications will be added to meet up with the demands so... a diagnostic labscope from TiePie engineering has a long economic lifespan!

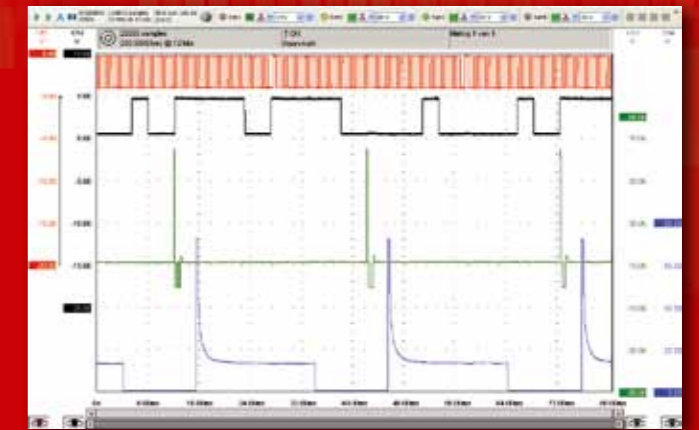
The ATS5004D diagnostic labscope

With the development of the ATS5004D a new era has begun in which making a diagnosis will become less difficult. By the development of new and intelligent software and by the use of advanced measuring probes, automotive components can be judged better and faster on their performance or failing. The ATS5004D is an extremely fast 4 channel differential labscope in which each channel input is electrically isolated. This is normally not offered on other automotive labscopes but gives the user of a differential labscope all freedom to connect the measure leads

randomly without worrying about creating a short circuit between the channels. The labscope also functions well when used in combination with any communication device. A remarkable detail is that the labscopes from the 5000 series can be connected to each other. With that users of an ATS5004D (or ATS5000: 2 channel) can expand their measure capacity with an ATS5004D (4 channel) to create a very powerful 8 channel (or 6 channel) diagnostic tool.

Smart labscope settings

The power of this 4 channel diagnostic labscope is that measured signals can be referenced and compared. Smart calculations make it possible to transform difficult to diagnose measurements into easy to understand graphs. The TiePie engineering team is continuously searching for ways to transform specific measurements into understandable diagnostic information. The diagnostics are written down in set files, these set files can later be recalled by a push of the button via the ATIS software. The components will also be provided with measure instructions, diagnostic clues, connect pictures and many additional diagnostic information.



Complete automotive diagnostic tool

We offer elaborate software packages, adapters and smart options which can create a complete diagnostic tool package. With this diagnostic tool package all automotive components, sensors and actuators, but also things like the return flow of common rail

injectors, turbo systems with all its pressures, fuel pressures, inlet pressure with the working of inlet control valves, actual vehicle power and others are simply diagnosed and faults are easily recognised. Even more important... also be solved.

Automotive diagnostic tool case

The ATS5004D is delivered as part of the TiePie engineering Automotive Diagnostics Kit. This complete Automotive Diagnostics Kit contains all tools and accessories that are required to solve most diagnostic problems. The kit comes in a sturdy case, conveniently arranging all components so they are immediately

available. With one case to carry, you will always have all your required tools with you.

ATIS (Automotive Test and Information System)

The standard diagnostic tool comes with ATIS software. Besides the very elaborate basic software, in which more than 250 automotive components are present, TiePie engineering offers even more. By putting together a DVD with information of more than 2500 cars, you will have the most advanced diagnostic tool within reach. After a selection of the component, or a combination of components, by only a push of the button all relevant information is displayed: component info, how to connect picture and reference labscope signal. And even the proper settings for the labscope are loaded. Also a detailed electrical wiring diagram of the engine management system of the selected car will be available.



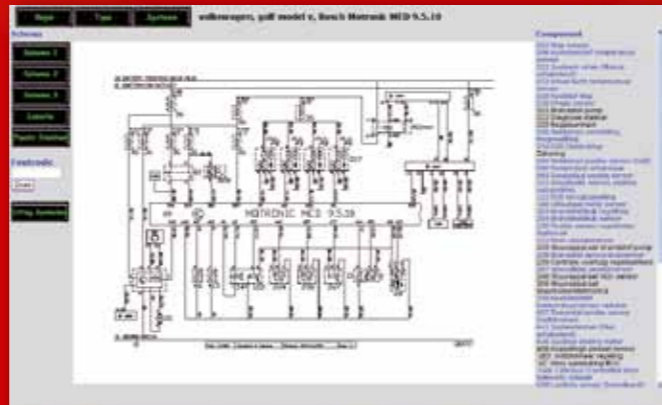
The right diagnosis

With the ATIS software, in combination with the ATS5004D labscope, you will have the right ingredients to be able to find and solve all types of faults in automotive vehicles. The combination of soft- and hardware is also very useful when trying to locate the cause of very brief and intermittent occurring faults. By using all 4 channels together with smart measurement combinations that are available in the software, a fast and accurate diagnosis is possible.



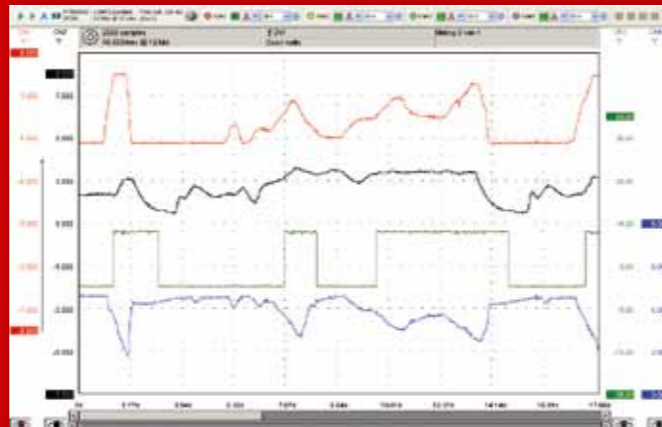
Extremely fast recorder

The ATS5004D labscope possesses a very unique and extremely fast recorder function with which signals can be measured and recorded with a sample rate of over 5 MHz for a long time. This recorder function is very effective when searching for intermittent faults on fast changing signals over a long period time, like e.g. crank angle, camshaft, injector or ignition signals.



Current Clamp 600A

This current clamp can measure current up to 600 Ampère. Accurate measurements are necessary when measuring starting current with combined calculations for relative compression and diagnostic of the starter. Also generator systems are highly advanced and can only be properly diagnosed when using a current clamp. And what about measuring glow systems with more and more increasing currents and therefore more advanced control.



Current Clamp 10mA up to 80A

This current clamp can measure current from 0,01 up to 80 Ampère and this can be very useful for locating current leaks and faults in executive power components. Pulsating currents can only be properly diagnosed when using a labscope. During diagnosis on components like injectors, ignition coils and glow systems it is important to measure the right current flow.



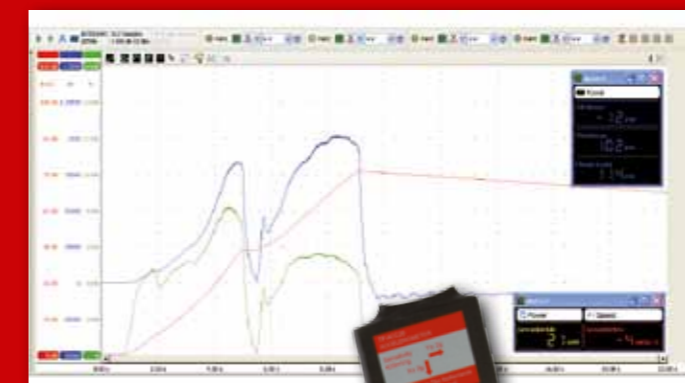
Secondary Ignition Pickup kit

With these two capacitive secondary pickup clamps most ignition systems can be measured on the high voltage cables. Also the control on the primary side of the ignition coil can be measured. By connecting the 10:1 attenuators (in the standard kit) between the measure lead and the labscope primary voltages up to 800 Volt can be measured.

Signal capture by trigger button

With the trigger button even brief occurring faults are made visible by “freezing” a timeframe. The chance of locating a fault by this method is 100%. Your expensive diagnostic technician does not have to put mileage on the car hoping the fault occurs once. The owner or someone else can drive the car and only has to press the trigger button when the fault occurs. After triggering the measured signal is stored and can be evaluated by the technician up till the moment the fault takes place. The labscope also is able to trigger automatically by using 1 channel as a trigger channel, all 3 other

channels can be used to measure various signals until the engine stalls.

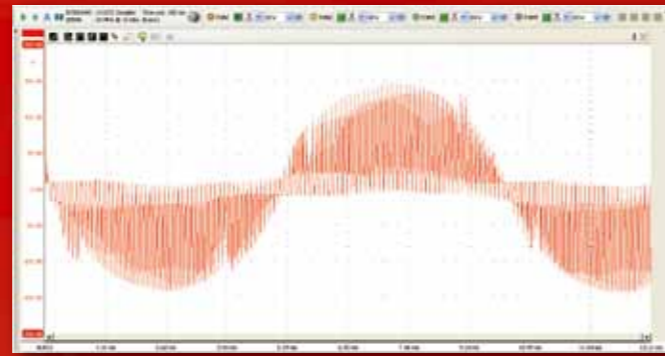


Power measurement

Sometimes there is a need to measure/check the power of a vehicle at the wheels. E.g.: after an engine tuning, after a repair or doubts after a sell. Now you have the opportunity to make a vehicle power measurement with ease. Just place the G-sensor in the vehicle, start the software, pull up with full throttle, let the vehicle roll with clutch depressed and a complete power report is displayed on screen or can be printed. It's that easy with the ATS5004D.

Hybrid systems

The ATS5004D is fully equipped to diagnose hybrid or electric vehicles. By using the 10:1 attenuators you can measure the high voltage of the hybrid batteries, the 3-phase electric power system and engine. As well as there are various hybrid settings and reference signals present. In other words: the ATS5004D is prepared for the future.



Add-on options for the ATS5004D diagnostic tool for increasing its potential

To create a more and more complete diagnostic system, lately various useful optional add-ons were developed. With these options the 4 measuring channels combined with the calculating

power of the labscope can be used to optimize the performance. Several of these options are unique and will give the diagnostic technician a big lead over his colleagues.

Common rail diagnostic system RFS400

As you will know the amount of return flow of an injector is showing the condition of the injector. By checking the flow, the internal leakage (wear), correction (engine imbalance) and control of the injectors is tested. With the introduction of the RFS400 it is

possible to measure the return flow electrically, store it and print it in a quality report. The much used measurement bottles method only provides a rough indication of the condition of the injectors and...there is no possibility to check the return flow in partial load or maximum load. The RFS400 can not "over run" as it is used as a closed circuit measuring system and therefore can be used for unlimited test drives. The basis of these measurements is of course the ATS5004D labscope which transforms the data of the signals into easily readable graphs. The RFS400 also measures with an extreme accuracy and therefore every load situation is easy to diagnose. There are situations in which problems only occur under load and intermittent, this testing method is ideal to locate these problems. In other words... the RFS400 is a measuring device that should be in the toolbox of every technician. The range of the RFS400 is 0.5 ml/min up to 160 ml/min.



Pressure measurement system APS260

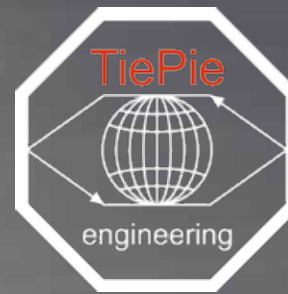
Advanced inlet and exhaust systems ask for an advanced measuring system. For example with the APS260, fast pressure changes in the inlet can be transformed into a labscope signal. With a reaction time of 1 millisecond every deviation in the intake pattern is made visible and a diagnosis can be made. Same goes for the exhaust pressure patterns. Depending on the muffler system of the exhaust, deviations of the combustion and/or exhaust valves are made visible. The APS260 can also be used to diagnose turbo systems. Parameters like actual turbo pressure can be measured precisely but also several pressure or vacuum valves in combination with their duty cycle control signal can be checked for flaws. The APS260 can measure from absolute vacuum up to 1.6 Bar pressure (2.6 Bar total range).



Temperature measurement system TMS150

Air conditioning (airco) systems are becoming more and more complex and advanced. Also the temperature control in the cooling system, intercooler, EGR system and more, are becoming more important. Checking these systems is more and more required, but not just one parameter at the time but with 4 measuring channels simultaneously and under various conditions. Each temperature sensor of the TMS150 is attached to a metal clamp. These clamps can be put on any desired component to measure its temperature changes. An example for the use of this option is in an airco system in which the temperature before and after the evaporator and the flow from the dashboard openings are measured at the same time. As an extra add-on option, the TMS150 can be completed with 2 pressure sensors with which, besides the temperatures of the airco system, the pressures can be measured, which can be very useful for a more precise diagnosis of the system. The measuring range of the TMS150 is from -50°C up to +150°C.





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The ATS5004D basic toolkit

The labscope basic toolkit is being provided in a sturdy case and contains the following items:

Hardware:

- ATS5004D, 4-channel labscope, 50 MHz per channel with 4 completely separated inputs
- 4 special extra long automotive measuring cables (2.8m) for measuring during a test drive with the labscope on the passenger seat
- Trigger button for capturing intermittent occurring faults with running engine or during a test drive
- 200A and 600A current clamp for checking relative compression, start and glow circuits
- 0.01 - 80A current clamp for testing for current leaks and testing (pulsating) executive power components
- G-sensor with power connector and measuring connections for measuring vehicle power during a test drive
- 8 special back probes of 0.7mm flexible steel to a 4mm connector. For each channel 2 probes.
- 5 crocodile/gator clamps for ground connection of the measuring cables and other connections
- 4 differential 10:1 attenuators for measuring up to 800 Volts (primary ignition, hybrid systems)
- All labscope inputs are supplied with a connection check system for a reliable measurement connection
- Pre shaped storage compartment for the supplied items
- 128 KiSamples memory per channel for high resolution signal display
- USB 2.0 connecting cable to the pc/laptop with a transfer speed of 480 Mbit/s
- 12 bit measure resolution (0.025% deviation). Changeable up to 16 bit.

Specifications:

- Inputs 4 differential analog, BNC
- Input sensitivity 200 mV - 80 V full scale, in 2-4-8 sequence
- Resolution 12 bits 0.025%, 14 bits and 16 bits selectable
- Maximum voltage 200 Volt DC + AC peak, <10 kHz
- Input impedance 4 x 2 MOhm / 40 pF
- Bandwidth DC to 50 MHz
- Coupling AC / DC
- Accuracy 0.3 % \pm 1 LSB
- Trigger source Ch1, Ch2, Ch3, Ch4, combination of these, digital external modes rising/falling slope, inside/outside window
- Memory depth 128 KiSamples per channel
- Pre/post trigger 0 .. 131060 samples (0 .. 100%)
- Interface USB 2.0 (USB 1.1 compatible)
- Power from USB, 500 mA @ 5 V
- Operation temperature 0 °C .. +50 °C
- Storage temperature -10 °C .. +70 °C

Software and pre settings:

- DVD with over 2500 vehicles inclusive diagnostic information and 4500 reference labscope images and pre settings
- 250 basic components with labscope pre settings, connection info, component information and diagnostic guidance
- Elaborate measurements on engine management systems of petrol and diesel systems
- Special "continuous measurement" for storing measured signals over a long period of time
- Measurements to all ignition systems, with both primary as well as secondary measurements
- Testing generator performance on both 12V and 24V battery systems
- Special test for continuous check of wires and connectors
- Pre settings for measuring duty-cycle signals. These are automatically transformed to a percentage signal line
- Pre settings for measuring vehicle power from 5W up to 350 kW
- Easy to access CAN-bus measurements. With automated check report on these signals
- The software is applied with a 4-channel Ohm-scope for measuring resistances between 1 and 2000 Ohm
- Pre settings for checking ABS sensors
- Several options for automated setup for current measurements
- User friendly control of the scope via a quick button bar
- Unique auto-set function for fast and precise setting of the scope for a correct display of signals
- Auto trigger for storing measurements when the engine stalls
- Easy signal zoom function for more accurate view of the moment the fault occurs
- The ATS5004D can be updated by the latest developments

Available settings for the optional add-ons:

- RFS400. Settings for measuring and checking the return flow of common rail injectors
- APS260. Various settings for pressure measurements in inlet and exhaust systems, turbo and turbo control systems
- TMS150. Temperature measurements for diagnostics of a/c, engine, radiator and intercooler systems

After the purchase of one or more of these add-on options they can be used immediately by using the already present settings.