

What drives you, drives us.

For over 125 years, Bosch innovations have been keeping vehicles on the road and getting people to and from their destinations while improving safety and peace of mind along the way.

Bosch Automotive Aftermarket offers workshops and retailers a comprehensive portfolio of products that is unmatched worldwide:

- ▶ Efficient diagnostics
- ▶ Innovative workshop equipment
- ▶ Quick, reliable delivery
- ▶ The world's most comprehensive range of both new and remanufactured spare parts
- ▶ Workshop concepts to meet every requirement
- ▶ Comprehensive training
- ▶ Targeted sales and marketing support
- ▶ A competent service hotline
- ▶ 24-hour online workshop services

When it comes to scheduling, organising, and finding results, our solutions are combined with additional services to ensure your needs will be perfectly met, helping you to maximise your potential.

Robert Bosch Limited
PO Box 98
Uxbridge
UB9 5HJ
www.bosch-workshopworld.co.uk



Vehicle system analysis FSA

A yardstick in innovative technology



Forward-looking: Vehicle system analysis for every requirement

FSA 740: **The complete system** a new dimension in troubleshooting



FSA 740: system analysis at the vehicle from Bosch



FSA 500: Portable Bluetooth oscilloscope

- The complete system FSA 740**
- ▶ FSA scope module
 - ▶ ECU diagnostics
 - ▶ PC system
 - ▶ Trolley
 - ▶ All essential cables, clamps and probes



Workshop customers have high demands. Vehicle systems and components are becoming ever more complex and diverse. Apart from vehicles with internal combustion engines, more and more hybrid and electric vehicles are on the roads. How can repairs and maintenance be carried out in the future in a fast and profitable manner?

The innovative analysis and diagnostics technology from Bosch offers workshops clear advantages:

- ▶ With FSA your troubleshooting will be more accurate and efficient
- ▶ No more incorrect exchanging of parts on suspicion
- ▶ Finding faults in the vehicle system that are not entered in the fault memory
- ▶ Ideal supplement to ECU diagnosis
- ▶ Equip your workshop for the growing hybrid and electric vehicle market.

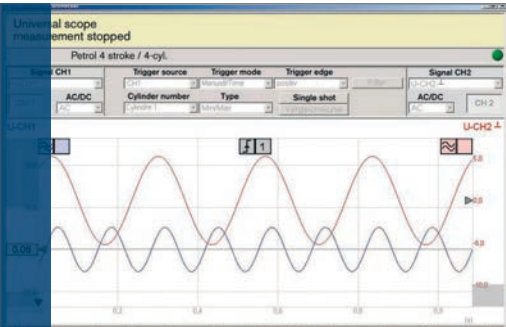
Sometimes you cannot see live data through serial diagnosis or you may be suspicious of the values being shown, this is where a scope is invaluable. A good example of this is a throttle potentiometer. Damage or wear on the track may not show up though serial diagnostics but will affect the performance of the car. Before replacing the part, a quick test with the scope would prove if the part is faulty or if the problem is elsewhere in the car.

Another area where a scope is essential is when testing the primary or secondary ignition system in the car. Before replacing a coil pack or plug lead to eliminate a fault, the FSA scopes will help with your diagnosis. Ignition patterns and component waveforms can be displayed side by side or overlaid for confident repairs. An ECU short or wiring fault could be causing a misfire and preset tests built into the FSA software can help to solve the problem much faster.

The FSA range can save you time, make you money and build your reputation!

Versatile signal generator

For testing sensors, including feeds and plugin connections when installed. In this way, it is possible to tell whether an ECU, a feed, a plug-in connection or a sensor is defective. This allows efficient fault elimination without replacing parts "on suspicion".



Powerful universal oscilloscope

The sample rates with the new universal oscilloscope of the FSA 720/740 reach up to 50 M/Samples. This provides sufficient reserves even for the testing of future vehicle components.

Benefits to the workshop

Versatile, efficient and reliable fault diagnosis

- ▶ Measurement module with extensive sensor equipment
- ▶ Concise and clearly arranged menu structure through test steps with vehicle-specific reference values
- ▶ Around 50 preset component tests
- ▶ New! Practical display of actual values from the ECU diagnostics in the FSA software in conjunction with the KTS module

Equipped for comprehensive diagnostics

- ▶ Complete system in the trolley with measurement module, PC, 19" TFT monitor, remote control and printer
- ▶ Powerful oscilloscope
- ▶ Software with test steps and component tests for the vehicle electronics and electrical system
- ▶ Menu-guided test steps for effective diagnostics
- ▶ Timesaving testing of components when still installed
- ▶ Simulation of signals for testing sensors when still installed in the vehicle
- ▶ Battery peak-coil current measurement up to 24 hours
- ▶ Test of vehicle bus systems (e.g. CAN bus)
- ▶ Importing and saving comparative curves

Return on investment example: FSA 500

RRP Price	£2,495
Scope Training	£340
Total Price	£2,835

▶ Timesaving approx. hr./week	1hrs.
▶ Additional turnover through "Error found" approx. hr./week	2hrs.

▶ Diagnostics hourly charge rate	£50
▶ Additional turnover of diagnosis time /week	£200
▶ Additional turnover of parts through "error found" approx.per week	£50
▶ Additional turnover of parts approx. per month	£200

Annual additional turnover of parts and calculated diagnosis time **£13,000**

Investment return in weeks **11 weeks**

Above figures represent an example of possible return on investment and are subject to change

Order number: 0 684 010 744 (without KTS 560, without keyboard)*
Order number: 0 684 012 745 (with KTS 560, without keyboard)*

* Oscilloscope measurement module is available separately as the FSA 720 for use with your own computer

New! FSA 500: **The economic measurement module** for flexible use



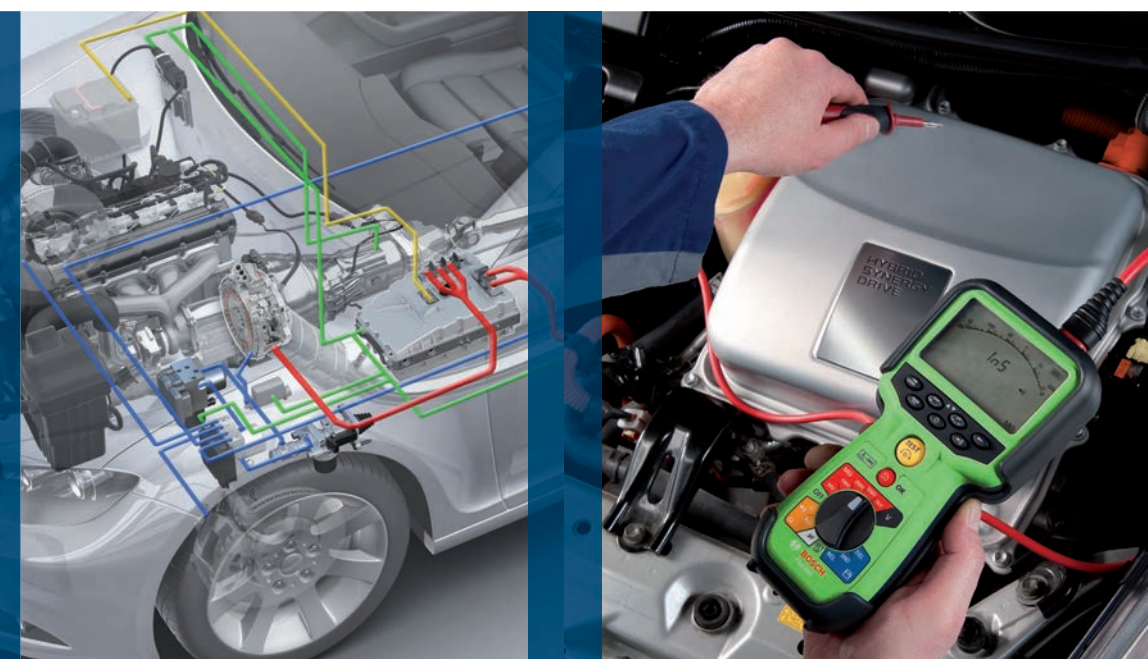
FSA 500

Precise, high resolution oscilloscope
Fast 2 channel and 4 channel mode
Signal generator to simulate component signals
Bluetooth connection for wireless troubleshooting
Able to test CAN bus systems

FSA 050: **Electric and hybrid vehicles** convenient, wireless testing

Hybrid technology
■ Current supply 12V
■ Communication
■ High-voltage supply
■ Hydraulic line/
■ brake system

The advantages are obvious. Competent troubleshooting on electric and hybrid vehicles with the FSA 050
► Simple and profitable usage



Benefits to the workshop

Convenient electronics testing

- Cost-effective oscilloscope
- Simple operation
- Flexible handling on vehicle
- Mobile use in the workshop
- For all standard demands on electrical and electronics testing
- Convenient display of actual values from ECU diagnostics in conjunction with KTS module
- Can be extended with the FSA 050 for testing electric and hybrid vehicles

Simple entry to advanced diagnostics

The new measurement module is ideal for all workshops looking for an economic and convenient solution for the more in depth diagnostic cases. Designed for fast, mobile use in the workshop, the handy FSA 500 provides the options required for workshop troubleshooting.

Equipped for cost-effective application

- Software for testing the most important electrical and electronic components in the vehicle
- Timesaving testing of components when still installed
- Around 30 preset component tests
- Signal generator for simulation of sensor signals
- Battery peak-coil current measurement up to 24 hours
- Convenient universal oscilloscope with 2 channel (2 x 40 MS/s) and 4-channel mode (4 x 1 MS/s)
- Test of vehicle bus systems (e.g. CAN bus)
- Importing and saving comparative curves
- Engine test functions
- Ignition scope

Equipment details FSA 500

- Dimensions approx. 220x290x110 mm (HxWxD)
- Weight approx. 1.5 kg
- Storage case
- Power unit with mains connection cable (100 – 240 V~ / 50 – 60 Hz)
- USB cable
- System software SystemSoft[plus]
- Connecting cable Multi 1/Multi 2 and B+ /B-
- Connecting cable term. 1/15 (Uni-line II)
- Trigger clamp
- Clamp-on probe 1000 A
- Air pressure measurement with hose line
- Universal KV probe
- Remote control button to freeze the screen

Order number: 0 684 010 512

Benefits to the workshop

More versatility and competence during troubleshooting

- Cost-effective entry to diagnostics of electric and hybrid vehicles
- Flexible as a standalone device or as a special accessory to the FSA 740
- Documentation of the measurement results in conjunction with FSA 500 or FSA 720/740/760

New! FSA 050: Future-proof your workshop to work on electric vehicles

The new high voltage multimeter for testing vehicles with electric and hybrid drive. The hand-held device can be linked wirelessly to the PC system or, optionally, to the FSA 500 or FSA 720/740/760 for documentation of the measurement results. As an individual solution, the FSA 050 offers insulation and high-voltage testing for electric and hybrid drives.

Equipped for professional diagnostics of electric and hybrid vehicles

- Hand-held device with bluetooth connection to the PC system
- Testing of vehicles with electric and hybrid drive
- High-voltage tests
- Insulation tests
- Use as a standalone device
- Special accessory for FSA 500, FSA 720/740/760
- Wireless data transmission from FSA 050 to FSA 500, FSA 720/740/760 or PC

In front right from the start with new vehicle drives

Electric and hybrid drives are on the march. The FSA 050 allows workshops to perform all diagnosis tasks without any problems and thus win new profitable customer groups. The hand-held device is designed for fast use in the workshop and can also be connected by bluetooth to existing systems. For step-by-step expansion to a comprehensive workshop system.

Equipment details FSA 050

- Dimensions ca. 220x110x65 mm (HxWxD)
- Weight ca. 0,8 Kg
- 2 Measuring cables
- High-voltage probe
- Hand-held unit with radio connection

Order number: 0 684 010 050

Accessories

	Designation	Order number	Description
	Test cable case	1 687 011 208	Case with vehicle-specific adaptations for simple, fast adaptations; more than 90 adaptations, providing very high coverage.
	Test point set	1 684 485 362	3 flexible test points in red, black and grey. 4.8 mm banana jacks.
	Test cable set	1 687 011 314	11-piece set of adaption cables with blade terminals and pin terminals, test point, test and clip terminals.
	Universal adapter	1 684 463 093	2-pin
	2/3/4/5-pin		Injection nozzles, lambda sensors
	Blade terminal, Y-shaped with banana jacks	1 684 463 342	3-pin
		1 684 463 343	induction-manifold pressure sensor, camshaft sensor
		1 684 463 344	Speed reference mark sensor
	Other shaped adapters are available		
	Measurement transmitter	1 687 225 017	measurement on ignition systems
	Universal secondary measurement transmitter for FSA 500		
	Secondary Measurement transmitter	1 687 224 987	Secondary measurement transmitter for measurement on pencil coils

A complete range of accessories is available. Please contact your Bosch distributor.

Comparison of component tests
FSA 500, FSA 720 and FSA 740

Component	FSA 500	FSA 720	FSA 740
CAN data line	●	●	●
PWM-controlled lamps	●	●	●
Wiring	●	●	●
Diodes and LEDs		●	●
Pneumatic actuators and valves	●	●	●
PTC heater	●	●	●
Voltage regulator / alternator	●	●	●
Starter	●	●	●
Vacuum pump		●	●
Intake air temperature probe NTC I	●	●	●
Atmospheric-pressure sensor		●	●
Battery temperature probe		●	●
Throttle-valve switch		●	●
Speed and reference mark sensor	●	●	●
Throttle-valve potentiometer	●	●	●
Pressure sensor for air conditioner		●	●
Pedal-travel sensor (Hall) / (pot.)		●	●
Knock sensor		●	●
Fuel-temperature sensor		●	●
Coolant temperature probe NTC II	●	●	●
Charge-air pressure sensor		●	●
Camshaft sensor	●	●	●
Oil pressure sensor		●	●
Oil temperature sensor (Hall) / (NTC)		●	●
Wheel-speed sensor	●	●	●
Intake manifold switching		●	●
Exhaust system (dynamic pressure measurement)	●	●	●
Catalytic converter	●	●	●
Throttle-valve positioning motor	●	●	●
Pressure-control valve (CR)		●	●
Fuel injector (gasoline)	●	●	●
Electric fuel pump (EKP)	●	●	●
Electric fuel pump relay	●	●	●
Injector (CR)	●	●	●
Fuel-pressure regulator (gasoline)		●	●
Fuel-pressure sensor		●	●
Fuel feed pump		●	●
Fuel preheating		●	●
UIS unit	●	●	●
Rail-pressure sensor	●	●	●
Tank vent valve		●	●
Warm-up regulator		●	●
Broadband sensor (lambda sensor)	●	●	●
Sensor heating (lambda sensors)		●	●
Discrete level sensor	●	●	●
Air-mass sensor analog up to HFM5	●	●	●
Air-mass sensor digital as of HFM6	●	●	●
Air-flow sensor	●	●	●
MAP sensor	●	●	●
Intake manifold pressure sensor	●	●	●
Idle-speed actuator (electrical, bypass)		●	●
Auxiliary-air device (K-jet)		●	●
Glow plugs	●	●	●
Ignition coil	●	●	●