

# Driven by efficiency

Technology from Bosch is used in practically every vehicle in the world. For us, the focus is on people and helping them to stay mobile.

We have been dedicated to people for more than 125 years with our pioneering spirit, research, production, and expertise.

And we continue to work on our combination of solutions for spare parts, diagnostic devices, workshop equipment, and services:

- ▶ Solutions for efficient vehicle repairs
- ▶ Innovative workshop equipment and software
- ▶ One of the world's largest selections of new and replacement parts
- ▶ Large dealership network for quick and reliable parts supply
- ▶ Competent hotline support
- ▶ Comprehensive educational and training offerings
- ▶ Targeted sales and marketing support

Find out more:  
[boschaftermarket.com](http://boschaftermarket.com)

What drives you  
drives us

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# Driven by **DIVERSITY**



Subject to technical and software changes

**FSA vehicle system analysis:**  
The benchmark of innovative technology

# Vehicle system analysis for every need

Workshop customers have high standards. So, if a vehicle has a problem, diagnosing the fault needs to be quick, thorough and affordable. With vehicle systems and components becoming ever more complex and diverse, workshops are best equipped to conduct quick and efficient, repair and maintenance using Bosch vehicle system analysis technology.



## FSA 050

The handy diagnostic device for electric and hybrid vehicles complements the comprehensive workshop test system perfectly

S.08



## FSA 500

The flexible entry point for simple diagnostics on electrical and electronic vehicle systems

S.10

## Component tests in comparison

FSA 500, FSA 720 and FSA 740

Designation	FSA 500	FSA 720	FSA 740	FSA 740 AU*
CAN data cable	•	•	•	•
PWM controlled lamps	•	•	•	•
Cabling	•	•	•	•
Diodes and light emitting diodes		•	•	•
Pneumatic actuators and valves	•	•	•	•
PTC heater	•	•	•	•
Voltage regulator / generator	•	•	•	•
Starter	•	•	•	•
Vacuum pump		•	•	•
Pressure measurement + temperature measurement	•	•	•	•
Intake air temperature sensor NTC I	•	•	•	•
Atmospheric pressure sensor		•	•	•
Battery temperature sensor		•	•	•
Throttle valve switch	•	•	•	•
Speed and reference mark transmitter	•	•	•	•
Throttle valve potentiometer	•	•	•	•
Pressure sensor air conditioning		•	•	•
Accelerator pedal sensor (Hall) / (potentiometer)		•	•	•
Knock sensor		•	•	•
Fuel temperature sensor		•	•	•
Coolant temperature sensor NTC II	•	•	•	•
Boost pressure sensor		•	•	•
Boost pressure sensor (digital)		•	•	•
Camshaft sensor	•	•	•	•
Oil pressure sensor		•	•	•
Oil temperature sensor (Hall) / (NTC)		•	•	•
Wheel speed sensor	•	•	•	•
Intake manifold	•	•	•	•
Exhaust system (dynamic pressure measurement)	•	•	•	•
Catalyser	•	•	•	•
Throttle starter motor	•	•	•	•
Petrol direct injection valves HDEV5	•	•	•	•
Pressure control valve (CR)		•	•	•
Injection valves (petrol)	•	•	•	•
Electric fuel pump (EKP)	•	•	•	•
Electric fuel pump relay	•	•	•	•
Injector (CR)	•	•	•	•
Fuel pressure regulator (petrol)		•	•	•
Fuel pressure sensor		•	•	•
Fuel pre-feed pump		•	•	•
Fuel pre-heater		•	•	•
Pump nozzle unit	•	•	•	•
Rail pressure sensor	•	•	•	•
Tank ventilation valve		•	•	•
Warm-up governor		•	•	•
Broadband probe (lambda probe)	•	•	•	•
Probe heating (lambda sensors)		•	•	•
Discrete-level sensor	•	•	•	•
Air mass meter up to HFM5 (analogue)	•	•	•	•
Air mass meter HFM6 (digital)	•	•	•	•
Air mass meter HFM7 u. HFM7 IPH (analogue / digital)	•	•	•	•
Air flow meter	•	•	•	•
MAP sensor	•	•	•	•
Intake manifold pressure sensor	•	•	•	•
Idling actuator (electric bypass)		•	•	•
Additional air slide (K-jet)		•	•	•
Glow plugs	•	•	•	•
Ignition coil	•	•	•	•

\* for exhaust gas measurement. Scope of delivery see page 16



“With the Bosch FSA series, you have the perfect solution for all vehicle diagnostic tasks.”



### **FSA 720**

The convenient system tester for a wide range of diagnostics. A true allrounder for the workshop

**S.12**



### **FSA 740**

Future-proof and expandable complete system for diagnostics, with TFT monitor, printer, remote control and practical trolley

**S.14**



# Reliable vehicle analysis with Bosch

Reliable analysis and diagnostics save unnecessary work on a vehicle, which can save both time and money for customers and workshops. Workshops can make a lasting impression on new and existing customers while demonstrating their expertise using modular diagnostics systems from Bosch.

The state-of-the-art vehicle system analysis equipment enables a fast and efficient search for the source of faults. Workshops are always one step ahead with Bosch diagnostic technology because it offers:

- ▶ Pre-set component tests for testing electrical vehicle components when installed
- ▶ Display of actual values from the ECU diagnostics in the vehicle system analysis software
- ▶ Optional diagnostics of electric and hybrid vehicles
- ▶ Optional expandability with modules for exhaustgas measurement

## **Versatile analysis for every workshop requirement**

All the key areas in the workshop can be serviced thanks to the modular diagnostic systems from Bosch. The vehicle system analysis can be set up as needed and then extended at any time. While existing diagnostic equipment can still be used, with Bosch it can be gradually upgraded to a comprehensive measurement and diagnostic system. A safe investment that will pay off quickly.

## Five major benefits for workshops:



Accurate and effective search results for faults



More expertise in fault analysis



Ability to find faults in the vehicle system which are not present in the fault memory



A secure investment through innovative and future-proofed Bosch technology



Optimal supplement to control unit diagnostics





**pre-set component tests  
for testing electrical and  
electronic vehicle components.  
Through a larger monitor everything  
remains visible at a glance.**



# FSA 050:

## Professional diagnostics of electric and hybrid vehicles

The FSA 050 enables every workshop to be prepared for the growing hybrid and electric vehicle market. This handy device enables the required high-voltage safety measurements such as voltage-free measurement on the system as well as insulation test and equipotential bonding measurement for troubleshooting.

The Bosch FSA 050 can be used as a stand-alone measuring device, for measuring value transmission even graphically and for measurement result documentation it can be connected via Bluetooth to an external PC system or the PC systems of the FSA 500 and FSA 7xx, completes your existing range of testing devices.



The FSA 050 is an important and simple diagnostic module for testing vehicles with electric and hybrid drive. With the ability to work wirelessly it's capable of performing multimeter functions such as voltage, resistance, capacitance, insulation and continuity tests, with measurements on the high voltage side up to 600 V (CAT IV1) as well as testing insulation resistance up to 200 GOhm at test voltages of 50 to 1,000 V.

The FSA 050 can be used in a variety of different ways, either as a device on its own for diagnostics of electric and hybrid vehicles, or as a special accessory for existing PC systems. Thanks to its compact dimensions of 220 x 110 x 65 millimetres (H x W x D) and its weight of just under 600 grams, there's a home for the FSA 050 in every workshop.

 **Order number**  
0 684 010 050



### Easy connection via Bluetooth

Can be coupled with CompacSoft of the FSA 500 and FSA 7xx



### Low-priced

Cost-effective diagnostics of electric and hybrid vehicles



### Flexible as a device on its own

Also, can be used as an optional extra

Bosch Connected Repair 

## The benefits of the FSA 050 at a glance

- ▶ Handheld device with wireless connection to a PC system
- ▶ Enables vehicle testing for both electric and hybrid drive
- ▶ Insulation testing
- ▶ High voltage testing
- ▶ Einsatz als Stand-Alone-Gerät oder als Sonderzubehör für FSA 500/720/740



# FSA 500:

## Simple diagnostics of electrics and electronics

The FSA 500 is the perfect entry into a more economical vehicle system analysis and perfect for workshops looking for a convenient solution in all standard diagnostic cases.



The handy FSA 500 is equipped with over 30 pre-set component tests and can be connected to existing systems and used for the gradual expansion of a workshop test system. Its strength lies in its ability to conveniently test important electrical and electronic components.

For full functionality of the FSA 500, it's recommended for use in conjunction with the robust DCU 220 (Diagnostic Control Unit), the convertible PC specifically designed for use in the workshop. The device can be used as a tablet PC or notebook and enables comfortable working in busy workshop conditions.

 **Order number**  
0 684 010 512

“The FSA 500 is suitable for mobile use in all standard requirements in electrical and electronic testing.”



**Bosch Connected Repair** 

### The benefits of the FSA 500 at a glance

- ▶ Compact, battery-powered measuring module with Bluetooth connection to the PC system
- ▶ Software for testing the most important electrical and electronic components in the vehicle
- ▶ Over 30 pre-set component tests
- ▶ Signal generator for the simulation of sensor signals
- ▶ Battery power measurement up to 24 hours
- ▶ Suitable for 12 V / 24 V / 48 V onboard electrical systems
- ▶ 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)
- ▶ Loading and saving of comparison curves
- ▶ Engine test functions
- ▶ Ignition scope
- ▶ Optional: Software useable on DCU 220

**Minimum requirements for PC or notebook:**  
CPU Intel / AMD 1.8 GHz or higher  
At least 5 GB of free hard disk space  
1 USB port (2.0)  
RAM 2 GB  
DVD drive

**Operating system:**  
Windows 7 Home Premium / Professional (32/64 Bit)  
Windows 8 (32/64 bit)  
Windows 10 (32/64 bit)

**Adaptation options:**  
Software can also be used on DCU 220



# FSA 720:

## Convenient system tester for a wide range of diagnostics

Measurement and correct diagnostics on a vehicle must be efficient and flexible. No problem for the Bosch FSA 720, the vehicle system analysis device can carry out many tests without having to remove any components.



A true all-rounder, the FSA 720 is the diagnostic platform of the future. Whether used for a classic engine or component test, the basic device with its innovative software is prepared to cope with troubleshooting tasks of today and tomorrow. The functional scope of this device is further increased when used in conjunction with the FSA 050 for testing electric and hybrid vehicles and other diagnostic systems.

In addition to the actual measuring module, the Bosch FSA 720 system tester includes comprehensive sensor equipment with ten sensor slots and a free slot for additional sensors. Its menu-guided test steps, optional vehicle-specific set point values and the display of actual values, make it even more convenient for workshops.

 **Order number**  
0 684 010 500

“A clear menu structure and helpful step-by-step instructions greatly simplify the handling of the FSA 720.”



Bosch Connected Repair 

### The benefits of the FSA 720 at a glance

- ▶ Measuring module with comprehensive sensor equipment
- ▶ Over 50 pre-set component tests
- ▶ Software with test steps and component tests for testing vehicle electronics and electrics
- ▶ Powerful oscilloscope with high sampling rate (2 x 50 MS/s)
- ▶ Simulation of sensor signals for sensor testing when installed
- ▶ Quiescent battery power measurement up to 24 hours
- ▶ Testing of a vehicle bus system (e.g. CAN bus)
- ▶ Loading and saving comparison curves
- ▶ Measuring module with USB connection to PC system
- ▶ Also suitable for 12 V / 24 V / 48 V electrical systems
- ▶ Diagnostics and troubleshooting of ignition systems in modern and older cars



# FSA 740:

## Future-proof and expandable complete system for comprehensive diagnostics



The FSA 740 is the comprehensive and complete system for accurate and economical vehicle system analysis from Bosch. Workshops can get started immediately and put vehicle components through their paces, reliably and quickly.

The FSA 740 is a true all-rounder, consisting of a measuring module, extensive sensor equipment, PC system including a 24" TFT monitor, remote control, printer and a practical trolley. A comprehensive range of accessories makes the FSA 740 a universal system with optimally tuned (coordinated) modules. If required, the device can be extended with ECU diagnose or emission (gas) systems analysis.

With the product facelift, FSA 740 got ready to deal with 48 Volt systems: Specific test instructions and measurement technology for new cars with 48V technology are already integrated. This enables analysis and diagnosis of current and future vehicle components and electric motors in particular.

Ten sensor ports and an additional free sensor port ensure that the FSA 740 is very well prepared for future requirements. Diagnosis is performed by menu guided test procedures, component tests and signal generator.



### Order number

0 684 013 740  
(Basic version, without KTS)

0 684 013 742  
(Basic version, with KTS)

0 684 013 748  
(with exhaust gas measurement for Europe)

Stable

Intelligent

Powerful

Robust



Bosch Connected Repair 

## The benefits of the FSA 740 at glance

- ▶ Complete system with trolley and measuring module, PC, 24" TFT monitor, remote control and printer
- ▶ Measuring module with comprehensive sensor equipment
- ▶ Over 50 pre-set component tests for testing vehicle electronics and electrics
- ▶ Software with test steps and component tests for testing vehicle electronics and electrics
- ▶ Powerful oscilloscope with high sampling rate (2 x 50 MS/s)
- ▶ Simulation of sensor signals for sensor testing when installed
- ▶ Quiescent battery power measurement up to 24 hours
- ▶ Test of vehicle bus system (e.g. CAN bus)
- ▶ Loading and saving comparison curves
- ▶ Measuring module with USB connection to PC system
- ▶ Expandable with exhaust modules for petrol and diesel vehicles
- ▶ Suitable for 12 V / 24 V / 48 V electrical systems
- ▶ Diagnostics and troubleshooting of ignition systems of modern and older cars

# Scope of supply

Model	Order number	Storage case	Measuring module with sensor carrier	Installation angle	Trolley	PC with Windows 10	WLAN	Monitor, mouse	Keyboard (German)	Colour laser printer	IR remote control	Diagnostic tester KTS 560	Gasoline exhaust gas measuring module (BEA 055)	Diesel exhaust gas measuring module (BEA 070)	Rotational speed measurement module (BEA 040)	Start-up current limiting	USB Bluetooth stick	Automatic software update via download	FSA software CompactSoft [plus]	Diagnostic software ESII(Tronic) 2.0	BEA PC Software	Connection cable Multi 1	Connection cable Multi 2	Connecting cable B+ / B	Measuring transducer KL 1/15	Measuring transducer 3xKV + (r)	Trigger clamp	Clamp meter 1000A	Clamp meter 30A	Stroboscope	Oil temperature sensor	Air pressure sensor	Y-adaptor	Universal secondary measurement with hose line	Weight	Operating temperature range	
<b>FSA 050</b>	0 684 010 050	•														•	•																		c. 0,8 kg	-20°C bis +55°C	
<b>FSA 500</b>	0 684 010 512	•	•													•	•				•	•	•			•	•									c. 1,5 kg	+5°C bis +40°C
<b>FSA 720</b>	0 684 010 500		•	•													•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•		c. 5 kg	+5°C bis +40°C
<b>FSA 740</b> (Basic version, without KTS)	0 684 013 740		•		•	•	•	•	•	•	•					•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•		c. 90 kg	+5°C bis +40°C
<b>FSA 740</b> (Basic version, with KTS)	0 684 013 742		•		•	•	•	•	•	•	•	•				•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•		c. 90 kg	+5°C bis +40°C
<b>FSA 740 AU</b> (With exhaust gas measurement for Europe)	0 684 013 748		•		•	•	•	•	•	•	•	•	•	•		•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•		c. 100 kg	+5°C bis +40°C	

# Special accessories

Model	Order number	Clamp meter 30 A; 1,60 m cable length Order number: 1 687 225 020	Clamp meter 30 A; 3 m cable length Order number: 1 687 224 969	Clamp meter 1000 A; 3 m cable length Order number: 1 687 224 968	Air temperature sensor Order number: 1 687 230 060	Extension cable for temperature sensor Order number: 1 684 465 517	Y adapter for differential pressure measurement on the particle filter Order number: 1 684 463 837 (VW-Gruppe) 1 684 463 838 (Mercedes)	Retrofit kit for exhaust gas measurement Gasoline (BEA 055) Order number: 1 687 001 975	Retrofit kit for exhaust gas measurement Diesel (BEA 070) Order number: 1 687 001 976	Universal secondary transmitter Order number: 1 687 224 973	Package: Ignition primary connection cables Order number: 1 687 224 987	Package: Ignition secondary connection cables: BMW, Opel Audi, MB test adapter: A, B, C / D, E, F / X, Y Order number: 0 688 100 017	Liquid printing kit Order number: 0 688 100 002	Hybrid tester FSA 050 Order number: 1 687 430 008	Charging cradle Order number: 0 684 010 050	Voltage divider Order number: 1 680 580 007	Voltage divider Order number: 1 687 224 301
<b>FSA 500</b>	0 684 010 512	•			•	•	•			•		•	•	•			
<b>FSA 720</b>	0 684 010 500		•		•	•				•		•	•	•			•
<b>FSA 740</b> (Basic version, without KTS)	0 684 013 740				•	•	•			•		•	•	•			•
<b>FSA 740</b> (Basic version, with KTS)	0 684 013 742				•	•	•			•		•	•	•			•
<b>FSA 740 AU</b> (With exhaust gas measurement for Europe)	0 684 013 748		•	•	•	•	•			•		•	•	•			•

## Minimum requirements for third party PCs

(Desktop and notebook):

**Hardware:** CPU Intel / AMD 1.8 GHz or higher; RAM at least 2 GB; at least 5 GB of free hard disk space; DVD drive; 1 free USB port (2.0) for FSA 720 o. FSA 500 (direct connection recommended, without intermediate USB hub); Please observe the information provided by the PC / notebook manufacturer in the manual. Under certain circumstances, an additional, specific adapter cable is needed. Vehicles can produce special electromagnetic radiation. Bosch PCs are tried and tested in this environment. To ensure perfect operation, we recommend operating the FSA 720 and FSA 500 with a Bosch PC.

**Software:**  
Windows 7 Home Premium / Professional (32/64 Bit)  
Windows 8 (32/64 bit)  
Windows 10 (32/64 bit)



# Small tester and adaptations

## The right equipment

Designation	Order number	Description
Multimeter MMD 302	<b>0 684 500 302</b>	Battery operated digital multimeter for voltage, current and resistance measurement with continuity test
Pressure loss tester EFAW 210 A	<b>0 681 001 901</b>	Pressure loss tester with high pressure test hose, OT detector and test nozzle for adjusting the tester
Test cable case	<b>1 687 011 208</b>	Case with vehicle-specific adaptations for simple, fast adaptations; more than 90 adaptations, therefore very high coverage
Test probe set	<b>1 684 485 362</b>	3 flexible test probes in red, black and grey, 4.8 mm banana sockets
Test cable set	<b>1 687 011 314</b>	11-piece set of adapter cables with flat and round plugs, test probe, test and alligator clips
Needle contactor	<b>1 684 480 118</b>	Needle contactor with test probe protection. Slips back on leads when clamped and allows a probe to enter the line. With this needle contactor, an electrical connection to a line can be made if no other adaptation is possible
Universal adapter 2/3/4/5-pole flat plug, Y-shaped with banana sockets	<b>1 684 463 093</b> <b>1 684 463 342</b> <b>1 684 463 343</b> <b>1 684 463 344</b>	2-pole injection nozzles, lambda probes 3-pole intake manifold pressure sensor, camshaft position sensor, speed reference mark sensor 4-pole 5-pole
Universal adapter 3/4/6-pole flat plug, Y-shaped, oval plug housing with banana sockets	<b>1 684 463 447</b> <b>1 684 463 448</b> <b>1 684 463 449</b>	3-pole camshaft sensor, crankshaft sensor, pressure sensor 4-pole lambda probes, primary adapter cable with oval ignition coil connection in conjunction with Uni adapter cable (1 684 462 211) 6-pole throttle actuator motor, as primary adapter in conjunction with Uni adapter cable (1 684 462 374) for testing ignition rails
Y adapter for differential pressure measurement (small plug)	<b>1 684 463 837</b>	3-pole for the detection of the particle filter differential pressure signal (e. g. VW group)
Y adapter for differential pressure measurement (large plug)	<b>1 684 463 838</b>	3-pole for the detection of the particle filter differential pressure signal (e. g. Mercedes)
Universal adapter 2/3/4/5-pole flat plug, Y-shaped with banana sockets	<b>1 684 463 379</b> <b>1 684 463 380</b> <b>1 684 463 381</b> <b>1 684 463 382</b>	2-pole 3-pole 4-pole 5-pole
dto. oval plug housing		
Universal adapter 6-pin round plug, Y-shaped	<b>1 684 463 479</b>	E-gas, throttle control unit, pedal encoder with ME 2.0
Universal adapter 3 x 1-pole / 4 x 1-pole Round plug, Y-shaped	<b>1 684 463 236</b> <b>1 684 463 237</b> <b>1 684 463 238</b> <b>1 684 463 240</b>	3 x 1-pole: 2.1 mm (lambda sensors) 4 x 1-pole: 1.6 mm (lambda sensors) 4 x 1-pole: 2.1 mm (lambda sensors) 4 x 1-pole: 2.5 mm (lambda sensors)
Universal secondary measuring transducer	<b>1 687 224 973</b>	Secondary measuring transducer for measurement on ignition systems
Universal secondary measuring transducer for FSA 500	<b>1 687 225 017</b>	
Secondary measuring transducer pencil ignition coil	<b>1 687 224 987</b>	Secondary transducer for measurement on pencil ignition coils
Primary package	<b>0 688 100 017</b>	For vehicle-specific primary adaptation, with connecting cables for BMW and Opel
Secondary package	<b>0 688 100 002</b>	For vehicle-specific secondary adaptation with connecting cables for Audi, BMW, Mercedes-Benz
Adapter cables for HFM testing	<b>0 986 610 067</b> <b>0 986 610 129</b> <b>0 986 610 195</b> <b>0 986 610 196</b> <b>0 986 610 441</b> <b>0 986 610 651</b> <b>1 684 463 738</b> <b>1 684 463 835</b> <b>1 684 463 836</b>	HFM6 / HFM7 HFM5 HFM6 HFM6 / HFM7 HFM6 HFM6 HFM7 HFM7 HFM7 IPH