A yardstick in innovative technology:
Vehicle system analysis FSA
# Modern Vehicle System Analysis from Bosch

## FSA 500
The economic measurement module for flexible use

- Particularly favorable: Entry to convenient electronics testing
  - Cost-effective measurement module
  - Simple operation
  - Flexible handling on vehicle
  - Mobile use in the workshop

More information from page 4

## FSA 720
The efficient measuring and diagnosis module

- Fast, simple and flexible diagnosis at the vehicle
  - Extensive sensor equipment
  - Concise and clearly arranged menu structure
  - Around 50 preset component tests

More information from page 6

## FSA 740 Edition
The complete system with extended application range

- Versatile, efficient and reliable fault diagnosis
  - Extensive sensor equipment
  - Concise and clearly arranged menu structure
  - Around 50 preset component tests

More information from page 8

## FSA 760
The professional system for the future

- Comfortable operation, versatile and professional fault diagnosis
  - 19” touchscreen
  - Measurement module with extensive sensor equipment
  - Around 50 preset component tests

More information from page 10

## FSA 050
Electric and hybrid vehicles convenient testing

- 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

More information from page 12

## KTS 890 (DCU 130 + KTS 540 + FSA 500)
The mobile test system for electronics and electronics diagnostics

- Equipment for cost-effective use
  - Compact, battery-driven measurement module with wireless link to the DCU 130 tablet PC
  - Software for testing the most important electrical and electronic components

More information from page 13

## Equipment supply and special accessories

More information from page 14

## Small tester and adaptations
The right equipment

More information from page 16
**Forward-looking: Vehicle system analysis for every requirement**

It has to be fast, perfect, but still inexpensive. Workshop customers have high demands. Furthermore, vehicle systems and components are becoming more and 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?

**Equipped for success with Bosch**

Reliable analysis and diagnostics form the basis of economic solutions to repair problems. This allows workshops to shine in the eyes of their customers, to prove their competence and to win new customer groups.

**Precisely gauged and safe investment in the future**

The modular diagnostics system from Bosch perfectly meets the individual requirements of the workshop. The vehicle system analysis can be set up and expanded as required. Existing diagnostics devices can still be used. Step-by-step upgrading to a measurement and diagnostics system is possible. A safe investment that pays off quickly.

**The new, innovative analysis and diagnostics technology from Bosch offers workshops five clear advantages:**

- Effective and precise search for faults
- More competence in fault analysis
- Finding faults in the vehicle system that are not entered in the fault memory
- Innovative technology from Bosch as a safe investment in the future
- Ideal supplement to ECU diagnosis

**The FSA generation for efficient troubleshooting**

New, further developed, high-modern diagnostics systems from Bosch allow an even faster and more efficient search for sources of faults. Always one step ahead with the vehicle system analysis from Bosch thanks to:

- Preset component tests for checking electrical and electronic vehicle components when still installed
- The display of actual values from the ECU diagnosis in the FSA software
- Optional diagnostics of electric and hybrid vehicles

Modern vehicle system analysis at the vehicle from Bosch

FSA 500: The economic measurement module
FSA 500: The economic measurement module for flexible use

FSA 500: The measurement module for entry to diagnosis of the electrical system and electronics

The handy FSA 500 from Bosch is the perfect entry into cost-effective vehicle system analysis. The battery-driven measurement module has a radio connection to the PC system. Its superiority is proved mainly in the convenient testing of all important electrical and electronic components. Many practical equipment details make it a safe investment in the future.

Equipped for cost-effective application

- Compact, battery-driven measurement module with wireless connection to the PC system (tablet PC DCU 130, laptop)
- 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

Benefits to the workshop

Particularly favorable: Entry to convenient electronics testing
- Cost-effective measurement module
- Simple operation
- Flexible handling on vehicle
- Mobile use in the workshop
- For all standard demands on electrical and electronics testing
- Around 30 preset component tests
- Convenient display of actual values from ECU diagnostics in conjunction with KTS module
- Can be extended by the FSA 050 for testing electric and hybrid vehicles

Minimum requirements of PC or notebook:
- CPU Intel / AMD 1.8 GHz or higher
- RAM 2 GB
- DVD drive
- At least 5 GB free hard-disk memory
- 1 USB port (2.0)
- Operating system:
  - Windows XP SP2
  - Windows Vista (32 bit) Home Premium/Business
  - Windows 7 Home Premium/Professional (32/64 bit)

Adaptation options:
Software can also be used on DCU 130
Simple entry to diagnostics - and all options open
The new measurement module is ideal for all workshops looking for an economic and convenient solution for all standard diagnostic cases. Designed for fast, mobile use in the workshop, the handy FSA 500 provides all options for adapting to existing systems as well as the step-by-step expansion to a comprehensive workshop testing system.

DCU 130: Tablet PC suitable for the workshop
Systems in pass. cars and comm. vehs. are becoming increasingly networked. This involves a great deal of data: Updates are important for the workshop – particularly if they contain information on new systems. But the hardware also to has keep pace in order to meet the requirements of the today’s daily workshop operation. The DCU 130 is the PC and operating unit for the FSA 500 measurement module and the ECU diagnostics modules KTS 540, KTS 570 and KTS Truck. It can be used as an alternative to the laptop. The touchscreen ensures even more flexible and comfortable work.

Integrated component testing
Why testing is so fast: Preset test parameters
CAN data line, PWM-controlled lamps, wiring, pneumatic actuators and valves, PTC heater, voltage regulator/alternator, starter, intake air temperature probe NTC I, speed and reference mark sensor, throttle-valve potentiometer, coolant temperature probe NTC II, camshaft sensor, wheel-speed sensor, exhaust system (dynamic pressure measurement), catalytic converter, throttle-valve positioning motor, fuel injectors (gasoline), electric fuel pump (EKP), electric fuel pump relay, injector (CR), UIS unit, rail-pressure sensor, broadband sensor (lambda sensor), 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, glow plugs, ignition coil

Equipment details FSA 500
- Dimensions approx. 220 x 290 x 110 mm (H x W x D)
- 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
- Oil temperature sensor
- Air pressure measurement with hose line
- Universal KV probe
- Remote control button

Order number: 0 684 010 510
FSA 720: **The efficient measuring and diagnosis module**

**Benefits to the workshop**

- Fast, simple and flexible diagnosis at the vehicle
  - Measurement module with extensive sensor equipment
  - Concise and clearly arranged menu structure
  - Test steps with optional vehicle-specific reference values*
  - Around 50 preset component tests
  - Practical display of actual values from the ECU diagnosis in the FSA software in conjunction with the KTS module
  - Optional testing of electric and hybrid vehicles in conjunction with FSA 050

* CompacSoft[plus] subscription required

**FSA 720: The comfortable system tester for universal diagnostics**

The measurement module FSA 720 is the diagnostics platform of the future. From the classic engine test to component testing, the basic device with innovative software and new application masters present-day and future troubleshooting tasks. The modular system structure permits connection to existing and new diagnostics systems. With a device from the KTS series and a PC, the Bosch FSA 720 can be extended step by step to a complete measuring and diagnostic system.

**Equipped for a wide range of diagnostics**

- Measurement module with USB connection to the PC system
- Powerful oscilloscope with high sample rate (2 x 50 MS/s)
- Software with test steps and component tests for the vehicle electronics and electrical system.

**CAN bus: Practical functional test**

The workshop can perform a physical functional test of the fast CAN-bus systems in the vehicle.
- Menu-guided test steps for effective diagnostics
- Timesaving testing of components when still installed
- Simulation of sensor signals for testing sensors when installed
- Battery peak-coil current measurement up to 24 hours
- Test of vehicle bus systems (e.g. CAN bus)
- Importing and saving comparative curves

**Tried and tested technology and new applications**
Apart from the actual measurement module, the Bosch system tester FSA 720 also includes an extensive range of sensors. Ten sensor slots, and a free slot provided for an additional sensor system allow trouble-free work without continuous sensor changing. Even more comfort during troubleshooting is offered by the menu-guided test steps with vehicle-specific setpoint value and display of the actual values from the ECU diagnostics in the FSA software.

**Equipment details FSA 720**
- Dimensions approx. 210 x 550 x 220 mm (H x W x D)
- Weight approx. 5 kg
- Measurement module with sensor carrier
- Installation angle
- Power unit with mains connection cable (90 – 264 VAC/47 – 63 Hz)
- System software SystemSoft[plus]
- Connecting cable Multi 1/Multi 2 and B+/B- Connecting cable for term. 1/15 (Uni-line IV)
- Measurement transmitter 3 x KV+/Rt and 3 x KV-/Sw
- Trigger clamp
- Clamp-on probe 1,000 A
- Stroboscope
- Oil temperature sensor
- Air pressure measurement with hose line
- Operating temperature range 5 °C to 40 °C

**Order number:** 0 684 010 500

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**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 MSamples. The provides sufficient reserves even for this testing future vehicle components.
FSA 740 Edition: **The complete system**
with extended application range

The complete system FSA 740 Edition
- FSA measurement module
- ECU diagnostics
- PC system
- Trolley

**Benefits to the workshop**

**Versatile, efficient and reliable fault diagnosis**
- Measurement module with extensive sensor equipment
- Concise and clearly arranged menu structure
- Test steps with optional vehicle-specific reference values*
- Around 50 preset component tests
- Practical display of actual values from the ECU diagnostics in the FSA software in conjunction with the KTS module

**Universal use**
- For vehicles with internal-combustion engine and electric/hybrid drive (optional by adding the FSA 050)
- Can be extended by exhaust-gas measurement modules for gasoline and diesel vehicles

* CompacSoft[plus] subscription required

**FSA 740 Edition: A new dimension in troubleshooting**
The FSA 740 Edition is the universal system comprising modules perfectly tuned to one another. Additional new and existing diagnostic devices can be combined with the FSA 740 Edition. The all-rounder consists of a measurement module, sensor system, PC system and trolley.

The diagnosis is carried out in menu-guided test steps and by the component test and the signal generator. Testing the sensors when they are installed makes targeted fault correction of the relevant components possible.

**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 installed
- Battery peak-coil current measurement up to 24 hours
- Test of vehicle bus systems (e.g. CAN bus)
- Importing and saving comparative curves
Future-proof and convenient
The Bosch FSA 740 Edition is perfectly suited for future requirements with 10 sensor slots and a free slot for a possible new sensor system. Furthermore, the system can be extended easily with test modules for electric and hybrid drives and for exhaust-gas tests.

Equipment details FSA 740 Edition
- Dimensions approx. 1,785 x 680 x 670 mm (H x W x D)
- Weight approx. 91 kg
- Trolley
- Measurement module with sensor carrier
- Power unit with mains connection cable (90 – 264 VAC/47 – 63 Hz)
- PC with PC operating system
- Monitor, mouse, keyboard (D/A), printer
- Remote control (transmitter and receiver)
- System tester KTS 540 wireless (optional)
- System software SystemSoft[plus]
- Connecting cable Multi 1 / Multi 2 and B+/B-
- Connecting cable for term. 1 / 15 (Uni-line IV)
- Measurement transmitter 3 x KV+ / Rt and 3 x KV- / Sw
- Trigger clamp
- clamp-on probe 1,000 A and 30 A
- Stroboscope
- Oil temperature sensor
- Air pressure measurement with hose line
- 2 x Y-Adapter
- Universal secondary measurement transmitter
- Operating temperature range 5 °C to 40 °C

Order number:
0 684 010 740 (without KTS 540, with german keyboard)
0 684 010 742 (with KTS 540, with german keyboard)
0 684 010 744 (without KTS 540, without keyboard)
0 684 010 745 (with KTS 540, without keyboard)
FSA 760: The professional system for the future

FSA 760: Efficient and innovative for the toughest diagnostic requirements

The FSA 760 is the expert for all types of test operations. The complete system consists of the FSA measurement module, sensor system, trolley and PC system. Equipped with a 19” touchscreen monitor and with the option of combining all modules with additional diagnostic devices at any time, the workshop is ideally equipped for the future. Comprehensive equipment details, such as sensor and component testing when installed, make troubleshooting even faster and more profitable.

Equipped for professional diagnostics

- Innovative operation via the touchscreen
- Complete system in the trolley with measurement module and PC, 19” touchscreen 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 installed
- Battery peak-coil current measurement up to 24 hours
- Test of vehicle bus systems (e.g. CAN bus)
- Importing and saving comparative curves
A look into the future
The 19” touchscreen of the FSA 760 heralds a new era of comfortable handling of the PC system. The diagnostics expert FSA 760 proves its sustainability with the test options for electric and hybrid drives and for exhaust measurements. Clear menu-guided test steps with vehicle-specific setpoint values and display of the actual values from the ECU diagnostics in the FSA software are two further positive features contributing to a simple, profitable test procedure.

Equipment details FSA 760
- Dimensions approx. 1,785 x 680 x 670 mm (H x W x D)
- Weight approx. 91 kg
- Trolley
- System tester KTS 540 wireless
- Sensor equipment as the FSA 740 Edition, plus:
  - Fluid-pressure kit
- Power unit (90 – 264 VAC/47 – 63 Hz)
- Operating temperature range 5 °C to 40 °C

Order number: 0 684 010 760 (with german keyboard)
Order number: 0 684 010 761 (without keyboard)

Benefits to the workshop

Comfortable operation, versatile and professional fault diagnosis thanks to
- 19” touchscreen
- Measurement module with extensive sensor equipment
- Efficiency through fast and simple software sequences
- Concise and clearly arranged menu structure
- Test steps with optional vehicle-specific reference values*
- Around 50 preset component tests
- Practical display of actual values from the ECU diagnosis in the FSA software in conjunction with the KTS module

High investment safety, universal use
- Modular diagnostic system in the trolley
- Optional testing of electric and hybrid vehicles in conjunction with FSA 050
- Can be extended by exhaust-gas measurement modules for gasoline and diesel vehicles

* CompacSoft[plus] subscription required
FSA 050: Electric and hybrid vehicles
convenient 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
- As an individual solution
- As special accessory

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
- Documentation of the measurement results in conjunction with FSA 500 or FSA 720/740/760

FSA 050: Future-proof as a standalone device or as a special accessory
The new diagnostics module for testing vehicles with electric and hybrid drive. The hand-held device 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 radio connection to the PC system
- Testing of vehicles with electric and hybrid drive
- High-voltage tests
- Insulation tests
- Use as a standalone device
- Special accessories for FSA 500, FSA 720/740/760
- Wireless data transmission from FSA 050 to FSA 500, FSA 720/740/760

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 radio 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
KTS 890: Fast and flexible vehicle analysis

KTS 890 (DCU 130 + KTS 540 + FSA 500): The mobile test system for electrics and electronics diagnostics
The handy FSA 500 from Bosch forms the perfect basis for cost-effective vehicle system analysis. The battery-driven measuring module has a wireless connection to the tablet PC. Its main strengths include easy testing of all important electric and electronic components, and the convenient display of actual values from ECU diagnosis (KTS module). A large number of practical equipment details make KTS 890 a safe investment.

Equipment details FSA 500
Storage case, network component with network connecting cable, USB cable, SystemSoft[plus] system software, Multi 1/Multi 2 and B+/B connecting cable, terminal 1/15 connecting cable, trigger clamp and current clamp 1,000 A, air pressure measurement with hose, universal KB probe, and remote operation push-button.

Order number KTS 890: 0 684 400 890

KTS 890: Advantages of fast engine tests

Equipment for cost-effective use
- Compact, battery-driven measurement module with wireless link to the DCU 130 tablet PC
- Software for testing the most important electrical and electronic components
- Time-saving testing while components remain in the car
- Around 30 preset component tests
- Signal generator simulates sensor signals
- Measurement of battery no-load for up to 24 hours
- Universal oscilloscope with 2-channel (2 x 40 MS/s) and 4-channel mode (4 x 1 MS/s)
- Testing of vehicle bus systems (e.g. CAN)
- Importing and saving comparative curves
- Proper engine test functions

DCU 130 – the tablet PC
Designed for workshop use, the robust DCU 130 controls all test and diagnostic systems from Bosch.
Equipment supply and special accessories

### Equipment supply

<table>
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<tr>
<th>Model</th>
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<th>Dimensions</th>
<th>Weight</th>
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<td>0 684 010 510</td>
<td>ap. 220 x 290 x 110 mm</td>
<td>ap. 1.5 kg</td>
<td>90–254 VAC / 47–63 Hz</td>
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<td>FSA 740 Edition (without KTS 540, with German keyboard)</td>
<td>0 684 010 740</td>
<td>ap. 1785 x 680 x 670 mm</td>
<td>ap. 91 kg</td>
<td>90–264 VAC / 47–63 Hz</td>
<td>5 °C to 40 °C</td>
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<td>FSA 740 Edition (without KTS 540, without keyboard)</td>
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### Special accessories

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* Important: Include keyboard CH (1 687 022 355) in your order

### Minimum requirements for external PCs (desktop and notebook):

**Hardware:** CPU Intel/AMD 1,800 MHz or higher RAM min. 2 GB; at least 5 GB free hard-drive space; DVD drive; 1 free USB port for FSA 720 (a direct connection is recommended without an interposed USB hub); please refer to the specifications of the PC/notebook manufacturer in the manual. In some circumstances, an additional special adapter cable is necessary.
<table>
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<th>Supplementary Equipment</th>
<th>System software</th>
<th>Dimensions (H x W x D)</th>
<th>Weight</th>
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<td>Bluetooth-Stick</td>
<td>SystemSoft[plus]</td>
<td>approx. 220 x 290 x 110 mm</td>
<td>approx. 1.5 kg</td>
<td>90 – 254 VAC / 47 – 63 Hz</td>
<td>5°C to 40°C</td>
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<td>Connecting cable</td>
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<td>approx. 210 x 110 x 65 mm</td>
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<td>Battery operation</td>
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<td>approx. 1785 x 680 x 670 mm</td>
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Vehicles can produce special electromagnetic radiation. Bosch PCs have been tested in this environment. To guarantee perfect operation, we recommend that the FSA 720 is run with a Bosch PC.

### Small tester and adaptations

**the right equipment**

<table>
<thead>
<tr>
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<th>Order number</th>
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<td>Stroboscopic lamp</td>
<td>0 684 100 501</td>
<td>Stroboscopic lamp ETZ 005.01 with xenon. ETZ 005.01 Flashing lamp measures and tests exactly: Basic setting of the ignition distributor, ignition angle, centrifugal force adjustment and vacuum advance mechanism.</td>
</tr>
<tr>
<td>Pocket sensor ETZ 003.09</td>
<td>0 684 100 309</td>
<td>For adjusting the moment of ignition for higher performance and longer service life. Xenon light flash visible even in bright rooms. Housing made of sturdy plastic, insensitive to engine oil and fuel. Clip-on sensor can be clamped over the ignition cable in any desired form; independent of direction.</td>
</tr>
<tr>
<td>Multimeter MMD 302</td>
<td>0 684 500 302</td>
<td>Battery-operated digital multimeter for voltage, current and resistance measurement with continuity test.</td>
</tr>
<tr>
<td>Pressure-loss tester EFAW 210 A</td>
<td>0 681 001 901</td>
<td>Pressure-loss tester with high pressure test hose, crankshaft TDC detector and test nozzle for adjusting the tester.</td>
</tr>
<tr>
<td>Test cable case</td>
<td>1 687 011 208</td>
<td>Case with vehicle-specific adaptations for simple, fast adaptations; more than 90 adaptations, providing very high coverage.</td>
</tr>
<tr>
<td>Test point set</td>
<td>1 684 485 362</td>
<td>3 flexible test points in red, black and grey. 4.8 mm banana jacks.</td>
</tr>
<tr>
<td>Designation</td>
<td>Order number</td>
<td>Description</td>
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<tr>
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</tr>
<tr>
<td>Test cable set</td>
<td>1 687 011 314</td>
<td>11-piece set of adaption cables with blade terminals and pin terminals, test point, test and clip terminals.</td>
</tr>
<tr>
<td>Needle contact</td>
<td>1 684 480 118</td>
<td>Needle contact with test point protection. Moves back when connecting to cables and allows a test point to enter the cable. This needle contact allows you to set up an electrical connection to a cable if there is no other adaptation option.</td>
</tr>
<tr>
<td>Universal adapter 2/3/4/5-pin Blade terminal, Y-shaped with banana jacks</td>
<td>1 684 463 093</td>
<td>2-pin Injection nozzles, lambda sensors</td>
</tr>
<tr>
<td></td>
<td>1 684 463 342</td>
<td>3-pin Induction-manifold pressure sensor, camshaft sensor</td>
</tr>
<tr>
<td></td>
<td>1 684 463 343</td>
<td>Speed reference mark sensor</td>
</tr>
<tr>
<td></td>
<td>1 684 463 344</td>
<td>4-pin</td>
</tr>
<tr>
<td></td>
<td>1 684 463 345</td>
<td>5-pin</td>
</tr>
<tr>
<td>Universal adapter 3/4/6-pin Blade terminal, Y-shaped, oval plug housing with banana jacks</td>
<td>1 684 463 447</td>
<td>3-pin Camshaft sensor, crankshaft sensor, Pressure sensor</td>
</tr>
<tr>
<td></td>
<td>1 684 463 448</td>
<td>4-pin Lambda sensors, primary adapter line with oval ignition coil connection in conjunction with Uni-adapter cable (1 684 462 211)</td>
</tr>
<tr>
<td></td>
<td>1 684 463 449</td>
<td>6-pin Throttle-valve positioning motor, as primary adapter in conjunction with Uni-adapter cable (1 684 462 374) for testing ignition rails</td>
</tr>
<tr>
<td>Universal adapter 2/3/4/5-pin Blade terminal, Y-shaped with banana jacks ditto oval plug housing</td>
<td>1 684 463 379</td>
<td>2 pin (universal)</td>
</tr>
<tr>
<td></td>
<td>1 684 463 380</td>
<td>3-pin (universal)</td>
</tr>
<tr>
<td></td>
<td>1 684 463 381</td>
<td>4-pin (universal)</td>
</tr>
<tr>
<td></td>
<td>1 684 463 382</td>
<td>5-pin (universal)</td>
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</table>
# Small tester and adaptations

the right equipment

<table>
<thead>
<tr>
<th>Designation</th>
<th>Order number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal adapter 6-pin Pin terminal,</td>
<td>1 684 463 479</td>
<td>E-gas, throttle valve control unit, pedal-travel sensor with ME 2.0</td>
</tr>
<tr>
<td>Universal adapter 3 x 1-pin / 4 x 1-pin Pin terminal, Y-shaped</td>
<td>1 684 463 236 / 1 684 463 237 / 1 684 463 238 / 1 684 463 240</td>
<td>3 x 1-pin: 2.1 mm (lambda sensors) 4 x 1-pin: 1.6 mm (lambda sensors) 4 x 1-pin: 2.1 mm (lambda sensors) 4 x 1-pin: 2.5 mm (lambda sensors)</td>
</tr>
<tr>
<td>Universal secondary Measurement transmitter Universal secondary measurement transmitter for FSA 500</td>
<td>1 687 224 973 / 1 687 225 017</td>
<td>Secondary measurement transmitter for measurement on ignition systems</td>
</tr>
<tr>
<td>Secondary Measurement transmitter Pencil coil</td>
<td>1 687 224 987</td>
<td>Secondary measurement transmitter for measurement on pencil coils</td>
</tr>
<tr>
<td>Primary package</td>
<td>0 688 100 017</td>
<td>For vehicle-specific primary adaptation, with connecting cables for BMW and Opel.</td>
</tr>
<tr>
<td>Secondary package</td>
<td>0 688 100 002</td>
<td>For vehicle-specific secondary-adaptation with connecting cables for Audi, BMW, Mercedes-Benz. Image similar to equipment supply.</td>
</tr>
</tbody>
</table>
## Comparison of component tests
**FSA 500, FSA 720, FSA 740 and FSA 760**

<table>
<thead>
<tr>
<th>Component</th>
<th>FSA 500</th>
<th>FSA 720</th>
<th>FSA 740</th>
<th>FSA 760</th>
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<tr>
<td>CAN data line</td>
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<td>PWM-controlled lamps</td>
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<tr>
<td>Wiring</td>
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<td>●</td>
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<tr>
<td>Diodes and LEDs</td>
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<tr>
<td>Pneumatic actuators and valves</td>
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<tr>
<td>PTC heater</td>
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<tr>
<td>Voltage regulator / alternator</td>
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<tr>
<td>Starter</td>
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<tr>
<td>Vacuum pump</td>
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<td>Intake air temperature probe NTC I</td>
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<tr>
<td>Atmospheric-pressure sensor</td>
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<tr>
<td>Battery temperature probe</td>
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<td>Throttle-valve switch</td>
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<tr>
<td>Speed and reference mark sensor</td>
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<tr>
<td>Throttle-valve potentiometer</td>
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<td>Pressure sensor for air conditioner</td>
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<tr>
<td>Pedal-travel sensor (Hall) / (pot.)</td>
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<td>Knock sensor</td>
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<td>Fuel-temperature sensor</td>
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<td>Coolant temperature probe NTC II</td>
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<td>Charge-air pressure sensor</td>
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<td>Camshaft sensor</td>
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<td>Oil pressure sensor</td>
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<tr>
<td>Oil temperature sensor (Hall) / (NTC)</td>
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<td>Wheel-speed sensor</td>
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<td>Intake manifold switching</td>
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<tr>
<td>Exhaust system (dynamic pressure measurement)</td>
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<td>Catalytic converter</td>
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<td>Throttle-valve positioning motor</td>
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<td>Pressure-control valve (CR)</td>
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<td>Fuel injector (gasoline)</td>
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<td>Electric fuel pump (EKP)</td>
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<td>Electric fuel pump relay</td>
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<td>Injector (CR)</td>
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<tr>
<td>Fuel-pressure regulator (gasoline)</td>
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<td>Fuel-pressure sensor</td>
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<td>Fuel feed pump</td>
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<td>Fuel preheating</td>
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<td>UIS unit</td>
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<td>Rail-pressure sensor</td>
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<td>Tank vent valve</td>
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<td>Warm-up regulator</td>
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<td>Broadband sensor (lambda sensor)</td>
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<td>Sensor heating (lambda sensors)</td>
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<td>Discrete level sensor</td>
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<tr>
<td>Air-mass sensor analog up to HFMS5</td>
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<td>Air-mass sensor digital as of HFM6</td>
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<td>Air-flow sensor</td>
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<td>MAP sensor</td>
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<td>Intake manifold pressure sensor</td>
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<tr>
<td>Idle-speed actuator (electrical, bypass)</td>
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<tr>
<td>Auxiliary-air device (K-jet)</td>
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<td>Glow plugs</td>
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<tr>
<td>Ignition coil</td>
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</tbody>
</table>
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