

SparkView – High Voltage Indicator

Operating Manual



P/N 01.10.045-EN | Rev. 07/2022

Original instructions

© Copyright 2022 MOTORTECH GmbH. All rights reserved.

MOTORTECH products and the MOTORTECH logo are registered and/or common law trademarks of the MOTORTECH GmbH. All further trademarks and logos displayed or used in this publication are the property of the respective entitled person and are used for reference purposes only.

Information contained in this publication may be changed without prior notice.

Table of Contents



1 General Information	5
1.1 What Is the Purpose of this Operating Manual?	5
1.2 Who Is this Operating Manual Targeted to?	5
1.3 Which Symbols Are Used in the Operating Manual?	5
1.4 Which Abbreviations/Acronyms Are Used in the Operating Manual?	6
2 Safety Instructions	7
2.1 General Safety Instructions	7
2.2 Electrostatic Discharge Hazards	8
2.3 Special Safety Instructions for the Device	9
2.4 Proper Disposal	11
3 Intended Use	12
3.1 Functional Description	12
3.2 Applications	12
4 Product Description	13
4.1 Technical Data	13
4.1.1 Certifications	13
4.1.2 Mechanical Data	13
4.1.3 Warning Notices on the Device	13
4.1.4 Product Identification – Labeling on the Device	14
4.1.5 Electrical Data	15
5 Operation	16
5.1 Unpacking	16
5.2 Start-up	17
5.3 General Operation	18
5.3.1 Overview	18
5.3.2 Voltage Display	20
5.3.3 Status Display	20
5.3.4 Preferences	21
5.4 Measuring High Voltage	22
5.4.1 Measuring with SparkScan1 High Voltage Clamp	23
5.4.2 Measuring on Ignition Coil with Diagnostic Interface	26
5.5 Evaluation of Measurement Results	27
5.6 Shutdown	28
6 Errors	29
6.1 Possible Faults	29

■ Table of Contents

6.2 Customer Service Information	29
6.3 Returning Equipment for Repair / Inspection	30
6.4 Instructions for Packaging the Equipment	30
7 Maintenance	31
7.1 Removing and Inserting Batteries	31
7.2 Cleaning	31
7.3 Spare Parts and Accessories	31
8 Index	32

1 General Information



Read through this operating manual carefully before use and become familiar with the product. Installation and start-up should not be carried out before reading and understanding this document. Keep this manual readily available so that you can reference it as needed.

1.1 What Is the Purpose of this Operating Manual?

This manual serves as an aid for the installation and operation of the product and supports the technical staff with all operating and maintenance tasks to be performed. Furthermore, this manual is aimed at preventing dangers to life and health of the user and third parties.

1.2 Who Is this Operating Manual Targeted to?

The operating manual provides a code of conduct for personnel tasked with the setup, operation, maintenance, and repair of gas engines. A certain level of technical knowledge with respect to the operation of gas engines and basic knowledge of electronic ignition systems are necessary. Persons who are only authorized to operate the gas engine shall be trained by the operating company and shall be expressly instructed concerning potential hazards.

1.3 Which Symbols Are Used in the Operating Manual?

The following symbols are used in this manual and must be observed:



Example

This symbol indicates examples, which point out necessary handling steps and techniques. In addition, you receive additional information from the examples, which will increase your knowledge.



Notice

This symbol indicates important notices for the user. Follow these. In addition, this symbol is used for overviews that give you a summary of the necessary work steps.



Warning

This symbol indicates warnings for possible risks of property damage or risks to health. Read these warning notices carefully and take the mentioned precautionary measures.

1 General Information



Danger

This symbol indicates warnings for danger to life, especially due to high voltage. Read these warning notices carefully and take the mentioned precautionary measures.

1.4 Which Abbreviations/Acronyms Are Used in the Operating Manual?

The following abbreviations/acronyms are used in the operating manual.

Abb.	Term	Description	Explanation
BNC	Bayonet Neill Concelman		Special design of coaxial connectors
CE	Conformité Européenne	Conformity with EU directives	Mark based on EU legislation for certain products in conjunction with product safety
LED	Light Emitting Diode		Light emitting electronic semiconductor

2.1 General Safety Instructions

The following safety instructions must be followed in the area in which the device is operated:



High voltage! Danger to life!

While the engine is running, there is danger to life through high voltage particularly in the area of the ignition system. The following parts should therefore not be touched or removed unless explicitly stated otherwise:

- Ignition coils and caps
- Wires of the high voltage circuit
- In- and output wiring of the ignition controller
- Pickups and their wiring



Danger to persons with pacemakers!

Electromagnetic impulses in the wiring of the ignition system may exceed the permissible limits of pacemakers. Persons with pacemakers must therefore not be present in the vicinity of the ignition system being operated. Mark the operating location of the ignition system with the corresponding standardized warning symbol.

MOTORTECH equipment is manufactured as state of the art and therefore safe and reliable to operate. Nevertheless the equipment can cause risks or damage can occur, if the following instructions are not complied with:

- The gas engine must only be operated by trained and authorized personnel.
- Observe all safety instructions of the system and all safety instructions of the system operator.
- Operate the equipment only within the parameters specified in the technical data.
- Use the equipment correctly and for its intended use only.
- Never apply force.
- For all work such as installation, conversion, adaptation, maintenance, and repair, all equipment must be disconnected from the mains and secured against unintentional reactivation.
- Perform only such maintenance and repair work as is described in this operating manual, and follow the instructions given while working.
- Only use spare parts supplied by MOTORTECH for the maintenance of the device.
- Further work must only be performed by personnel authorized by MOTORTECH. Non-compliance with the instructions will void any warranties for the proper function of the equipment as well as the responsibility for the validity of the certifications.
- Safety devices must not be dismantled or disabled.

2 Safety Instructions

- Avoid all activities that can impair the function of the equipment.
- Operate the equipment only while it is in proper condition.
- Investigate all changes detected while operating the gas engine or ignition system.
- Ensure compliance with all laws, directives, and regulations applicable to the operation of your system, including such not expressly stated herein.
- If the system is not entirely tight and sealed, gas may escape and result in explosion hazard. The inhalation of gas can also lead to death or severe health damages. Therefore, upon completion of all assembly works, always check the system's tightness.
- Always ensure adequate ventilation of the engine compartment.
- Ensure a safe position at the gas engine.
- There is a risk of burning on hot surfaces. It is imperative that you avoid contact with hot spots and wear safety gloves.
- Personal protective equipment (PPE), e.g. safety shoes and gloves, must be worn during all work on the gas engine.
- Noise from the system can cause permanent or temporary damage to your hearing. Wear suitable hearing protection at the system.
- Your behavior can reduce possible residual risks to a minimum. Observe responsible handling of the gas engine and the gas-carrying system.

2.2 Electrostatic Discharge Hazards

Electronic equipment is sensitive to static electricity. To protect these components from damage caused by static electricity, special precautions must be taken to minimize or prevent electrostatic discharge.

Observe these safety precautions while you work with the equipment or in its vicinity.

- Before performing maintenance or repair work, ensure that the static electricity inherent to your body is discharged.
- Do not wear clothing made from synthetic materials to prevent static electricity from building up. Your clothing should therefore be made of cotton or cotton mix materials.
- Keep plastics such as vinyl and Styrofoam materials as far away from the equipment as possible.
- Do not remove the circuit boards from the housing of the device.

2.3 Special Safety Instructions for the Device



High voltage! Danger to life!

While the engine is running, there is danger to life through high voltage particularly in the area of the ignition system. Do not touch the spark plug leads, ignition coils, and spark plugs with your hands while the engine is running. You can safely touch the grounded SparkScan1 high voltage clamp even when the engine is running.



High voltage! Danger to life!

Without proper grounding of the SparkScan1 high voltage clamp, life-threatening high voltage can occur. For your own safety, observe the following:

- Ensure at all times that the SparkScan1 is properly grounded to the engine via the grounding clamp.
- If the grounding clamp of the SparkScan1 comes loose during measuring (e.g. by tripping over the cable to the grounding clamp), do not touch the measuring clamp and the cables of the SparkScan1 or the BNC connector of the SparkView. Switch off the engine, and when the ignition is inactive, restore proper grounding before proceeding with measuring.



High voltage! Danger to life!

In a wet environment, the use of the SparkView high voltage indicator, the SparkScan1 high voltage clamp, and of the BNC cable poses a danger to life through high voltage. Likewise, wetness can destroy the products. Therefore, do not use the products in a wet environment.



High voltage! Danger to life!

If the SparkView high voltage indicator, the SparkScan1 high voltage clamp, or the BNC cable show any visible signs of damage in particular to cables and connectors, there is danger to life through high voltage and the measurements may be faulty. In such a case, refrain from using the respective product under any circumstances.

2 Safety Instructions



Risk of injury!

There is a risk of crushing in the area of the clamp. Be sure to keep fingers or other body parts away from the clamping surfaces.



Risk of injury!

To avoid injury, make sure that you do not trip over the cables of the SparkScan1 high voltage clamp or the BNC cable when using the SparkView high voltage indicator.



Risk of destruction!

Excess voltage may destroy or damage the SparkView high voltage indicator. Stop the measurement immediately if continuously values above 25 kV (set measuring range up to 25 kV) or above 50 kV (set measuring range up to 50 kV) are measured.



Risk of destruction! Operational safety!

Third-party products can destroy the SparkView high voltage indicator and lead to incorrect measurement results. Operate the SparkView solely with the MOTORTECH SparkScan1 high voltage clamp, with high-quality MOTORTECH BNC cables and with MOTORTECH ignition coils featuring a BNC diagnostic interface.



Risk of destruction!

When the battery compartment is open, moisture and dirt may get into the SparkView high voltage indicator and destroy it. You should therefore only use the device with the battery compartment cover firmly screwed shut.



Risk of damage!

Hot engine parts can damage the cables of the SparkScan1 high voltage clamp, the BNC cable, or the SparkView high voltage indicator. Avoid contact of the products with hot spots. Do not use damaged products.

2 Safety Instructions



Danger of interference with radio reception!

The device is not intended for use in residential areas and cannot ensure adequate protection of radio reception in such environments.

2.4 Proper Disposal

For the proper disposal of MOTORTECH equipment, observe the information provided at www.motortech.de.

3 Intended Use

3.1 Functional Description

The portable SparkView high voltage indicator measures and visualizes the high voltage demand of spark plugs while the engine is running. For this purpose, the SparkView measures the negative voltage transmitted by the connected measuring equipment through its BNC connector. The measurements can be carried out in two ways:

- With the SparkScan1 high voltage clamp from MOTORTECH on an unshielded spark plug lead from MOTORTECH (diameter max. 7 mm / 0.27")
- With a special BNC cable from MOTORTECH at the diagnostic interface of specific ignition coils from MOTORTECH

From the measured values you can draw conclusions about the condition of the ignition system and of the spark plugs. Regular measurements can thus also contribute to reducing maintenance costs.

3.2 Applications



Danger of interference with radio reception!

The device is not intended for use in residential areas and cannot ensure adequate protection of radio reception in such environments.

The portable SparkView high voltage indicator measures the high voltage demand of spark plugs while the engine is running. Depending on the set measuring range, it is designed for measuring voltages of up to 25 kV or 50 kV. Measurements can be made with a MOTORTECH SparkScan1 high voltage clamp on an unshielded MOTORTECH spark plug lead with a maximum diameter of 7 mm (0.27") or with a special MOTORTECH BNC cable at the diagnostic interface of specific MOTORTECH ignition coils. The signal line of the SparkScan1 high voltage clamp and the special BNC cable must not be longer than 3 m (118").

The SparkView high voltage indicator is suitable for all industrial gas engines operating with negative ignition voltages.

As per EN 55011, the SparkView high voltage indicator is equipment of Group 1 and Class A.

Any use other than the one described in the operating manual shall be considered improper use and will result in the voiding of all warranties.

4 Product Description



4.1 Technical Data

4.1.1 Certifications

The SparkView high voltage indicator is certified as follows: CE

The EU Declaration of Conformity can be obtained on request from your MOTORTECH contact person (see section *Customer Service Information* on page 29).

4.1.2 Mechanical Data

The SparkView high voltage indicator has the following mechanical characteristics:

Feature	Value
Dimensions	175 mm x 84 mm x 41 mm (6.89" x 3.31" x 1.62") (length x width x height)
Weight	210 g (0.47 lb) without batteries
Shape of device	See section <i>Overview</i> on page 18
Mechanical environmental conditions	Protection: IP20
Climatic environmental conditions	Working temperature: -20 °C to +50 °C (-4 °F to +122 °F) Transport and storage temperature: -20 °C to +70 °C (-4 °F to +158 °F) Max. 95 % humidity without condensation up to 5,000 m (16,403') above sea level
Housing material	Plastic, shock-protected

4.1.3 Warning Notices on the Device

Battery Compartment Cover

Ensure proper grounding of attached tools

Do not operate with battery door open

Use only specified leads and tools




4 Product Description

4.1.4 Product Identification – Labeling on the Device

The numbers required for unique product identification are on the device:

Abb.	Meaning
P/N	Part number of the high voltage indicator
S/N	Serial number of the high voltage indicator

Battery Compartment Cover

INPUT max. 50 V
Power Supply 3x LR6 AA Battery 4.5 V • max. 1 A
 WARNING! ENSURE PROPER GROUNDING OF ATTACHED TOOLS DO NOT OPERATE WITH BATTERY DOOR OPEN USE ONLY SPECIFIED LEADS AND TOOLS
P/N XX.XX.XX-XXX
 Made by MOTORTECH GmbH 29223 Celle • Germany 

Rear Side of Device

MOTORTECH GmbH 29223 Celle • Germany SparkView S/N XXXXXXXX

4 Product Description



4.1.5 Electrical Data

The SparkView high voltage indicator has the following electrical characteristics:

Feature	Value
Power supply	4.5 V DC, operation with 3 non-rechargeable alkaline manganese portable batteries LR 6 (AA), no rechargeable batteries
Required current	Max. 1 A
BNC input	Voltage range: -50 V to 0 V
Measuring range	0 kV to 50 kV
Resolution	Measuring range up to 50 kV: 1.25 kV Measuring range up to 25 kV: 0.625 kV
Accuracy of the display	± 2 kV
Maximum pulse frequency	60 Hz (corresponds to 7,200 rpm for a 4-stroke engine and 3,600 rpm for a 2-stroke engine) Higher frequencies may lead to a faulty display.
LED scale	Three-color, two brightness levels

5 Operation

5.1 Unpacking

Unpack the SparkView high voltage indicator taking care not to damage it, and ensure that the operating manual is always near to the device and is easily accessible. Check the contents for completeness and verify that the equipment meets your application requirements.

Scope of supply

The scope of supply of the SparkView high voltage indicator consists of the following components:

- SparkView high voltage indicator
- Alkaline manganese portable battery LR6 (AA), 1.5 V, non-rechargeable (3x)
- Operating manual
- Transport case

Accessories:

- SparkScan1 high voltage clamp including operating manual (optional)
- BNC cable (optional)

5.2 Start-up

To put the SparkView high voltage indicator into operation, insert the batteries. Proceed as follows:

1. Loosen the battery compartment cover screws on the back of the SparkView with a screwdriver and remove the battery compartment cover.
2. Insert the three supplied AA batteries. Ensure that the polarity is correct.
3. Put the battery compartment cover back on and secure it by tightening the battery compartment cover screws with a screwdriver.
 - ▶ The SparkView is ready for operation.

5 Operation

5.3 General Operation

5.3.1 Overview

Front View



Pos.	Designation
I	Voltage display (LED scale, also see section <i>Voltage Display</i> on page 20)
II	Adjustment buttons for the bottom value of the red range
III	Adjustment buttons for the bottom value of the yellow range
IV	Status display (see section <i>Status Display</i> on page 20)
V	SET button
VI	On/off button
VII	BNC connector

Plan View



Pos.	Designation
VII	BNC connector
VIII	Switch for selecting the measuring range <ul style="list-style-type: none"> - Position a: Measuring range 0 kV to 25 kV - Position b: Measuring range 0 kV to 50 kV

5 Operation

5.3.2 Voltage Display

The voltage display **I** of the SparkView high voltage indicator shows the currently measured voltage. With activated maximum value indication (see section *Preferences* on page 21), maximum values are kept for 0.5 seconds in the voltage display.



Risk of destruction!

Excess voltage may destroy or damage the SparkView high voltage indicator. Stop the measurement immediately if continuously values above 25 kV (set measuring range up to 25 kV) or above 50 kV (set measuring range up to 50 kV) are measured.

If values above the set permissible measuring range are measured, all LEDs of the voltage display light up red. In such a case, stop measuring immediately, as inadmissible measured values can destroy or damage the SparkView.

5.3.3 Status Display

The status display **IV** of the SparkView high voltage indicator lights up as soon as the device is switched on and it goes out when switched off. The different states of the status display have the following meaning:

Status display	Meaning
Green light	The batteries are fully charged.
Yellow light	The batteries have a medium charge level.
Red light	The batteries are weak.
Flashes red	The batteries are almost flat and should be replaced (see section <i>Removing and Inserting Batteries</i> on page 31).
Flashes red once and goes out	The device has been switched off manually.
Flashes red three times and goes out	The device has switched off automatically after 5 minutes of not being used.
Flashes red five times and goes out	The device has switched off due to flat batteries. The batteries must be replaced (see section <i>Removing and Inserting Batteries</i> on page 31).
Flashes red more than five times	There is a fault.

5 Operation



5.3.4 Preferences

You can make the following settings on the SparkView high voltage indicator.

Switching On and Off

To switch the SparkView high voltage indicator on, press the on/off button **VI**. To switch it off, briefly press and hold the on/off button **VI**. The SparkView also automatically switches off after 5 minutes of not being used.

Calibrating

The SparkView high voltage indicator calibrates itself each time it is switched on via the on/off button **VI**. If the ambient temperature changes considerably during operation (e.g. due to changing from a cold to a warm environment), the measured values may deviate from the actual values. In such cases, switch the SparkView off and on again to recalibrate the SparkView.

Testing the Scale

To display the current setting of the yellow and the red range in the voltage display **I**, press and hold the SET **V** button.

Setting the Yellow and Red Range

To set the optimum voltage range of your ignition system in the SparkView high voltage indicator, you can use the adjustment buttons for the lower threshold of the red range **II** and the yellow range **III**. For adjustment, press and hold the SET **V** button. Then additionally press and hold the respective adjustment button until the desired threshold is reached. Repeat this procedure for further threshold changes. To terminate threshold adjustment, release the SET **V** button. The setting is saved for the currently set measuring range and is retained when the SparkView is restarted. The setting has no effect on measurement sensitivity. The optimum voltage range of your ignition system can be found in the documentation for your ignition system.

Setting Maximum Value Indication

If necessary, you can switch the maximum value indication on and off by pressing the SET **V** button twice. If the maximum value indication is switched on, the maximum value is kept in the voltage display **I** for 0.5 seconds, making it easier to read.

Setting Voltage Display Brightness

Press and hold the SET **V** button, and press the on/off button **VI** once to toggle the brightness of the voltage display **I** between low and high if necessary. The SparkView high voltage indicator always starts with low brightness, as it spares the batteries. In certain lighting conditions, such as strong sunlight outdoors, it is advisable to switch to the high brightness level.

Setting Measuring Range

If very low measured values are displayed in the voltage display **I**, the switch for selecting the measuring range **VIII** can be put into position **(a)** with a screwdriver if required. On position **(a)** the SparkView high voltage indicator displays measured values up to 25 kV (right scale of the voltage display), on position **(b)** it shows measured values up to 50 kV (left scale of the voltage display).

5 Operation

5.4 Measuring High Voltage



Risk of destruction!

Excess voltage may destroy or damage the SparkView high voltage indicator. Stop the measurement immediately if continuously values above 25 kV (set measuring range up to 25 kV) or above 50 kV (set measuring range up to 50 kV) are measured.



Operational safety!

Additionally follow the instructions in the manual of the SparkScan1 high voltage clamp and of the ignition coil with BNC diagnostic interface in order to guarantee the safe operation of the SparkView high voltage indicator.



Risk of injury!

To avoid injury, make sure that you do not trip over the cables of the SparkScan1 high voltage clamp or the BNC cable when using the SparkView high voltage indicator.



Measuring accuracy

To obtain precise measurement results from the SparkView high voltage indicator, observe the following:

- Only use specified measuring accessories from MOTORTECH.
- When measuring with the SparkScan1 high voltage clamp, it must be properly grounded to the engine.
- Recalibrate the SparkView by switching it off and on if the ambient temperature changes considerably during operation.

You have two options for measuring the high voltage demand of spark plugs with the SparkView high voltage indicator when the engine is running:

- Measuring with the SparkScan1 high voltage clamp from MOTORTECH (length of signal line max. 3 m / 118") on an unshielded spark plug lead from MOTORTECH (see section *Measuring with SparkScan1 High Voltage Clamp* on page 23)
- Measuring with a special BNC cable from MOTORTECH (length max. 3 m / 118") at the diagnostic interface of specific ignition coils from MOTORTECH (see section *Measuring on Ignition Coil with Diagnostic Interface* on page 26)

5.4.1 Measuring with SparkScan1 High Voltage Clamp

The SparkView high voltage indicator is suitable for high voltage measurements using a SparkScan1 high voltage clamp with a signal lead not exceeding 3 m (118"). Before taking measurements with the SparkScan1 high voltage clamp, read the operating manual of the SparkScan1 supplied with the product. Then proceed as follows:



High voltage! Danger to life!

While the engine is running, there is danger to life through high voltage particularly in the area of the ignition system. Do not touch the spark plug leads, ignition coils, and spark plugs with your hands while the engine is running. You can safely touch the grounded SparkScan1 high voltage clamp even when the engine is running.



Risk of injury!

There is a risk of crushing in the area of the clamp. Be sure to keep fingers or other body parts away from the clamping surfaces.

1. Switch on the SparkView high voltage indicator by pressing the on/off button **VI**. The SparkView calibrates itself when it is switched on.
2. Press and hold the SET **V** button and use the adjustment buttons **II** **III** to adjust the red and the yellow range.
 - ▶ The setting is saved for the currently set measuring range and is retained when the SparkView is restarted.

5 Operation



High voltage! Danger to life!

Without proper grounding of the SparkScan1 high voltage clamp, life-threatening high voltage can occur. For your own safety, observe the following:

- Ensure at all times that the SparkScan1 is properly grounded to the engine via the grounding clamp.
- If the grounding clamp of the SparkScan1 comes loose during measuring (e.g. by tripping over the cable to the grounding clamp), do not touch the measuring clamp and the cables of the SparkScan1 or the BNC connector of the SparkView. Switch off the engine, and when the ignition is inactive, restore proper grounding before proceeding with measuring.



High voltage! Danger to life!

If the insulation of the ignition components is inadequate or damaged, sparks can leap, resulting in a life-threatening high voltage and faulty measurements.

Stop the measurement immediately if sparks leap. Switch off the engine and do not proceed with the measurement until you are sure that the ignition components are sufficiently insulated.



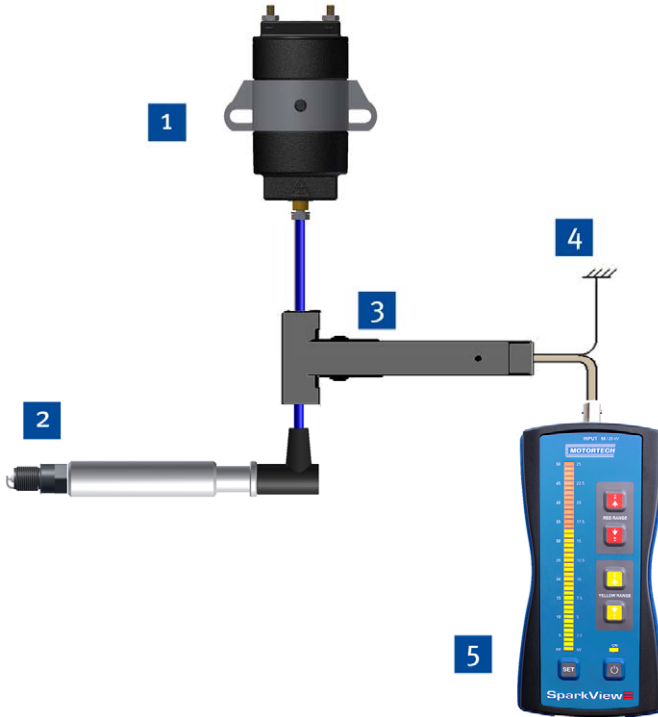
Risk of damage!

Hot engine parts can damage the cables of the SparkScan1 high voltage clamp or the SparkView high voltage indicator. Avoid contact of the products with hot spots. Do not use damaged products.

3. Clamp the grounding clamp of the SparkScan1 high voltage clamp to a suitable location on the engine that provides a safe electrical connection to ground.
4. Connect the coaxial cable of the SparkScan1 high voltage clamp to the BNC connector **VII** of the SparkView.
5. Clamp the SparkScan1 high voltage clamp as far away as possible from the ignition coil and with sufficient distance to the spark plug to an unshielded spark plug lead from MOTORTECH (diameter max. 7 mm / 0.27") without touching the spark plug lead, the ignition coil, or the spark plug with your hands.

5 Operation

- ▶ The test setup looks like this:



Pos.	Description
1	Ignition coil
2	Spark plug
3	SparkScan1 high voltage clamp
4	Grounding
5	SparkView high voltage indicator

5 Operation

- ▶ The voltage display of the SparkView high voltage indicator shows the measured voltage.



Risk of damage!

The SparkScan1 high voltage clamp is designed for short-term measuring of high voltages under full load and must not remain on the spark plug lead permanently. Otherwise, the spark plug lead may be damaged.

5.4.2 Measuring on Ignition Coil with Diagnostic Interface

The SparkView high voltage indicator is suitable for high voltage measurements with a BNC cable from MOTORTECH not exceeding 3 m (118"). Before taking measurements via the diagnostic interface of an ignition coil, read the installation instruction supplied with the ignition coil with diagnostic interface. Then proceed as follows:

1. Switch on the SparkView high voltage indicator by pressing the on/off button **VI**. The SparkView calibrates itself when it is switched on.
2. Press and hold the SET **V** button and use the adjustment buttons **II** **III** to adjust the red and the yellow range.
 - ▶ The setting is saved for the currently set measuring range and is retained when the SparkView is restarted.
3. Connect the device using a BNC cable from MOTORTECH to a MOTORTECH ignition coil with a BNC diagnostic interface.

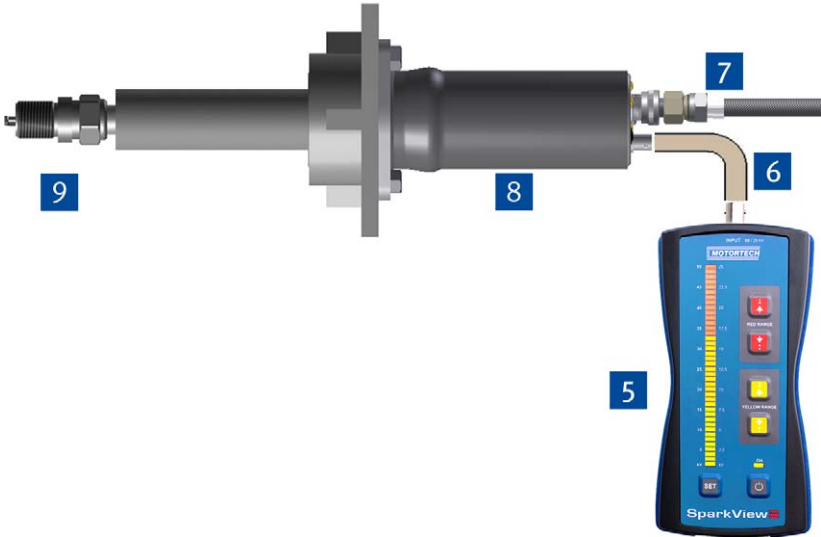


Risk of damage!

Hot engine parts can damage the BNC cable or the SparkView high voltage indicator. Avoid contact of the products with hot spots. Do not use damaged products.

5 Operation

- ▶ The test setup looks like this:



Pos.	Description
5	SparkView high voltage indicator
6	BNC cable
7	Primary cable
8	Ignition coil with diagnostic interface
9	Spark plug

- ▶ The voltage display of the SparkView high voltage indicator shows the measured voltage.

5.5 Evaluation of Measurement Results

If the voltage is too low or too high, this implies a faulty ignition system or a faulty spark plug. The voltage range which is correct for your ignition system can be found in the documentation for your ignition system. It is advisable to carry out a reference measurement immediately after installing the ignition system, in order to be able to compare subsequent measurements.

■ 5 Operation

5.6 Shutdown

If you do not need the device for a longer period of time, remove the inserted batteries. To do so, follow the instructions in the section *Removing and Inserting Batteries* on page 31, but do not insert new batteries.

6.1 Possible Faults

Problem	Possible cause	Solution
The device cannot be switched on.	The batteries are flat.	Replace the batteries (see section <i>Removing and Inserting Batteries</i> on page 31).
The values measured are much too high.	The switch for measuring range selection is not correctly set.	Set the switch for measuring range selection VIII to position (b) (see section <i>Overview</i> on page 18).
	There is a malfunction in your ignition system.	Carry out further tests on your ignition system.
Incorrect values are displayed.	The SparkScan1 high voltage clamp is not correctly mounted around the spark plug lead.	Clamp the high voltage clamp to a spark plug lead in such a way that it completely surrounds the spark plug lead. The spark plug lead must not exceed a maximum diameter of 7 mm (0.27").
	The ambient temperature has changed considerably.	Recalibrate the SparkView by switching it off and on.
	There is a malfunction in your ignition system.	Carry out further tests on your ignition system.

6.2 Customer Service Information

You can reach our customer service during business hours at the following phone and fax number, or by email:

Phone: +49 5141 93 99 0

Fax: +49 5141 93 99 99

Email: service@motortech.de

6 Errors

6.3 Returning Equipment for Repair / Inspection

To return the device for repair and inspection, obtain a return form from your MOTORTECH contact person (see *Customer Service Information* on page 29).

After you have completely filled out the return form and returned it to MOTORTECH, MOTORTECH will send you back the return form and a delivery note with RMA number specified. Enclose the return form with your device and attach the delivery note to the packaging so that it is clearly visible from the outside. This will ensure a speedy and smooth processing of your repair order.

Send the device with delivery note and return form to one of the two addresses below or to the nearest MOTORTECH representative:

MOTORTECH GmbH

Hogrevestr. 21-23
29223 Celle

Germany

Phone: +49 5141 93 99 0

Fax: +49 5141 93 99 98

www.motortech.de

motortech@motortech.de

MOTORTECH Americas, LLC

1400 Dealers Avenue, Suite A
New Orleans, LA 70123

USA

Phone: +1 504 355 4212

Fax: +1 504 355 4217

www.motortechamericas.com

info@motortechamericas.com

6.4 Instructions for Packaging the Equipment

For return shipment, equipment should be packaged as follows:

- Use packaging material that does not damage the equipment surfaces.
- Wrap the equipment with sturdy materials and stabilize it inside the packaging.
- Use sturdy adhesive film to seal the packaging.

7.1 Removing and Inserting Batteries



Reuse and disposal of batteries

Continue to use batteries that still have capacity. Dispose of empty batteries in an environmentally responsible manner and complying with local regulations.

Proceed as follows to remove batteries from the SparkView high voltage indicator and insert them into the device:

1. Switch the SparkView high voltage indicator off by briefly pressing the on/off button **VI**.
2. Disconnect the SparkView from the SparkScan1 high voltage clamp or the BNC cable.
3. Loosen the battery compartment cover screws on the back of the SparkView with a screwdriver and remove the battery compartment cover.
4. Remove the batteries. If you do not insert new batteries, continue with step 6.
5. Insert three new AA LR6 batteries. Ensure that the polarity is correct and do not use rechargeable batteries.
6. Put the battery compartment cover back on and secure it by tightening the battery compartment cover screws with a screwdriver.
 - ▶ Insofar as you have inserted batteries in step 5, the SparkView is ready for operation.

7.2 Cleaning

Clean the surface of the SparkView high voltage indicator with a damp cloth. Do not use detergents.

7.3 Spare Parts and Accessories

For spare parts and accessories, please refer to our current Product Guide, which is available for you to download on the internet at www.motortech.de.

8 Index

A	
Abbreviations	6
Application	12
B	
Batteries	
Inserting.....	17
Removing	31
Requirements	15
BNC cable, use of	26
BNC input	15
Brightness mode.....	21
C	
Calibration.....	21
Cleaning.....	31
Configuration.....	21
D	
Declaration of conformity	13
Device	
Calibration.....	21
Cleaning	31
Configuration.....	21
Dimensions.....	13
Disposal	11
Electrical data	15
Measuring range	21
Mechanical data.....	13
Operating elements.....	18
Protection class	13
Return	30
Serial number	14
Shutdown	28
Voltage display	20
Weight.....	13
Diagnostic interface, measuring at.....	26
Dimensions	13
Disposal.....	11
E	
Electrical data	15
Errors	29
Evaluation of measurement results.....	27
H	
High voltage clamp, use of.....	23
High voltage demand, measuring	22
I	
Ignition coil with diagnostic interface, measuring on.....	26
M	
Maintenance	
Battery change.....	31
Cleaning	31
Maximum value indication	21
Measurement results, evaluation of.....	27
Measuring	22
Measuring range	
Electrical data	15
Setting.....	21
Switch	18
Mechanical data.....	13
MOTORTECH	
Address	30
O	
Operating elements.....	18
P	
Part number	14
Power supply	15
Protection class	13
R	
Red range	
Buttons.....	18
Setting.....	21
Testing	21
Regulations.....	13
Repair.....	30
Return shipment.....	30
S	
Safety instructions	7
Scale	
Red range	21
Yellow range	21

Scope of supply	16
Serial number	14
Service.....	29
Shutdown	28
SparkScan1, use of	23
Start-up	17
Status display	20
V	
Voltage display	
Function	20
Setting.....	21
W	
Warning notices on the device	13
Weight	13
Y	
Yellow range	
Buttons	18
Setting.....	21
Testing.....	21

MOTORTECH GmbH

Hogrevestr. 21–23
29223 Celle
Germany

Phone: +49 (5141) 93 99 0
Fax: +49 (5141) 93 99 99
E-Mail: sales@motortech.de
Web: www.motortech.de

MOTORTECH Americas, LLC

1400 Dealers Avenue, Suite A
New Orleans, LA 70123
USA

Phone: +1 (504) 355 4212
Fax: +1 (504) 355 4217
E-Mail: info@motortechamericas.com
Web: www.motortechamericas.com

MOTORTECH Shanghai Co. Ltd.

Room 1018 Enterprise Square,
No. 228 Meiyuan Road,
Jing'An District, 200070 Shanghai
China

Phone: +86 (21) 6380 7338
E-Mail: info@motortechshanghai.com
Web: www.motortechshanghai.com

GAS ENGINE TECHNOLOGY

Ignition Systems	Red
Spark Plugs & Accessories	Orange
Gas Engine Control Systems	Light Blue
Sensor Systems	Yellow
Air/Fuel Ration Control Systems	Green
Exhaust Gas Aftertreatment	Green
Gas Engine Accessories	Grey