



# OPERATING INSTRUCTIONS

## SPY® JEEPMETER MODEL JM

# WELCOME

Thank you for purchasing the SPY® Model JM JeepMeter.

SPY Inspection Equipment and our SPY® brand of Coating Inspection, JeepMeter and Pig Tracking Equipment has been serving companies all over the world for over 60 years. With the purchase of this high precision instrument you can now enjoy access to worldwide service and support only SPY® and our vast Distributor network can offer.

For more information about SPY® brand equipment please visit our website at [spyinspect.com](http://spyinspect.com).



The SPY® Model JM JeepMeter meets the Electromagnetic Compatibility and Low Voltage Directive. This product is a Class B, Group 1 ISM equipment according to CISPR 11. Group 1 ISM product: A product in which there is intentionally generated and/or used conductively coupled radio-frequency energy which is necessary for the internal functioning of the equipment itself. Class B products are suitable for use in domestic establishments and in establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purpose.

**SPY** is a registered trademark of SPY Inspection Equipment, Houston, Texas, United States.

A copy of this Operating Instructions Manual can be downloaded on our website at [spyinspect.com](http://spyinspect.com).

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# UNIT CALIBRATION

As the operator of this unit you require accurate, safe, and reliable equipment to perform coating inspections at the proper output voltage.

Prior to leaving our manufacturing facility SPY Inspection Equipment certifies that SPY® Model JM JeepMeter (voltmeter) has been calibrated and demonstrates an accuracy of (+/- 5%). Since output voltage is regulated, this tolerance is maintained regardless of load.

Your unit comes with a **Factory Calibration Certificate** Traceable to NIST and a **Factory Authorized Calibration Decal** applied to the bottom of the unit both with the date your unit was calibrated.

Our units do not tend to drift but it is recommended that this unit be calibrated at least once per year or more frequently based on heavy usage. **Recalibration of our equipment should be performed ONLY at a SPY® Authorized Service Center due to the unique calibration process, test equipment utilized and properly trained SPY® technicians.**

We DO NOT recommend using any other calibration service other than a SPY® Authorized Service Center; using an outside service with technicians not trained to work on SPY® brand equipment could damage the unit and if the enclosure is opened will void the warranty.

When equipment service is needed please visit our Services & Repairs page on [spyinspect.com](http://spyinspect.com).

Fill out the online service form, submit, and then follow the instructions provided in the confirmation email that is sent to you. Please check your spam folder if you do not get the confirmation email. If you experience issues with the online service form please call us at 713-681-5837 so we can assist you.

For International Customers we have Authorized Service Centers World Wide. Please visit the Distributor Locator page on [spyinspect.com](http://spyinspect.com) to search for a local SPY® Authorized Service Center in your area. If none, please see instructions above to send to our SPY® Manufacturing Facility.

# PRINCIPLES OF OPERATION

The SPY® Model JM JeepMeter (voltmeter) is an instrument designed to provide accurate and reliable measuring of the crest value of high voltage non-sinusoidal waveforms. The output wave form of holiday detectors typically has this type of shape and therefore prevents the use of conventional RMS voltmeters.

The Model JM enables the operator to measure DC up to 7 kV or pulse DC up to 35 kV.

Holiday detectors output both types of waveforms depending on the type of coating they are being used on. For example, the SPY® 785 and 790 holiday detectors have pulse DC only output used for inspecting tapes, extruded coatings, coal tar enamels and sometimes thin film epoxy coatings and has a voltage range of 1 to 15 kV (785) and 5 to 35 kV (790) respectively. The SPY® 780 holiday detector is a DC output used for thin film epoxy coatings and has an output voltage range of 1 to 5 kV.

# JEEPMETER OVERVIEW

The output voltage of your holiday detector is subject to influence by weather conditions, moisture on the pipe, improper grounding, and soil conditions. In order to assure the absolute highest accuracy and performance from your holiday detectors (jeeps). SPY Inspection Equipment has developed three special JeepMeters for checking detector voltage output. These JeepMeters are designed to accurately measure the output voltage of any detector.

The SPY® Model JM JeepMeter provides the ultimate in accuracy and versatility. It features a digital display of measured voltages. The precision measurement displayed eliminates interpretation errors and is perfect for every day use.

This JeepMeter measures both pulse DC and DC voltage output. For pulse DC type holiday detectors, used to inspect shrink sleeves, tapes, coal tars, etc, the JM will measure up to 40 kV. For DC holiday detectors, used to inspect thin film epoxy coatings, the DC range of JM measures up to 5 kV.

When used with pulse DC type detectors, this JeepMeter automatically senses the polarity of the pulse DC. Leading-edge electronics solve the stability and repeatability problems sometimes experienced in the older models.



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|---|--|
| 1 On/Off Bat Switch                       | 6 Input Pulse DC/DC Bat Switch                     |
| 2 High Voltage DC Input Terminal          | 7 Output Voltage LCD Display/<br>Battery Indicator |
| 3 High Voltage Pulse DC Input<br>Terminal | 8 Extendable Feet                                  |
| 4 Quick Change Battery<br>Compartments    | 9 Ground Cable                                     |
| 5 Ground Input Terminal                   | 10 High Voltage Cable                              |

# BATTERY INSTRUCTIONS

The SPY® Model JM operates on two 9 volt alkaline batteries. The battery compartment is located on the back side of the unit.

**STEP 1:** Make sure the detector power switch is in the off position.

**STEP 2:** The battery compartment is located on the back side of the unit. Using the notch on the bottom of the battery compartment lift up and pull out to slide the battery trays out.

**STEP 3:** Insert two new 9-volt batteries into the battery trays and push the battery tray firmly back into the unit making sure it locks into place.

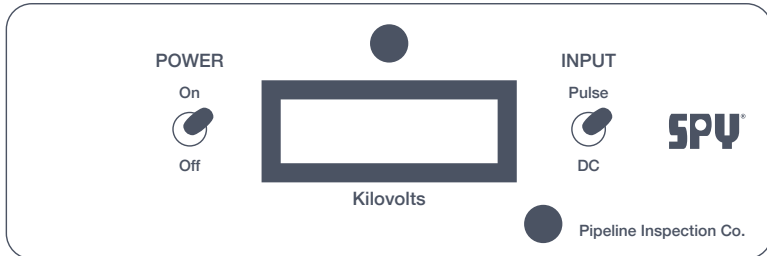


**Low Battery**

If the battery discharges to a low level the JeepMeter display will begin to flicker or will not come on, at this point the JeepMeter is not properly measuring voltage and the batteries should be changed to two new 9 volt batteries.



# CONTROLS



**CAUTION!** This meter is used to measure low energy high voltage. The operator may be subject to electrical shock if the meter is not properly grounded and/or operated in accordance with instructions and procedures described within these operating instructions.

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## TESTING INSTRUCTIONS

Test the strength of the batteries by placing the power switch to the “ON” position. The display activating indicates the battery strength is good. If the display flickers or does not come on then replace both batteries as described on the battery instructions page. Place the power switch to the “OFF” position after testing is complete.

# TO START JEEPMETER OPERATIONS

**STEP 1:** Test the battery by placing the power switch to the “ON” position. The light indicates good battery. If the light flickers or does not come on, replace the batteries as described in the battery procedure. Place the power switch to the “OFF” position after the battery condition has been checked.

**STEP 2:** To test DC holiday detector connect the high voltage (red cable) test lead to the DC input terminal on the top left of the JeepMeter.

To test pulse DC holiday detector connect the high voltage (red cable) test lead to the pulse DC input terminal on the top center of the unit.

**STEP 3:** Connect the other end (alligator clip) of the (red wire) high voltage test lead to a holiday detector electrode or the metal portion of the electrode wand.

**STEP 4:** Connect the ground (black cable) test lead to the ground input terminal located on the top right of the JeepMeter.

**STEP 5:** Connect the other end (alligator clip) of the ground (black cable) test lead to the bare metal of the pipe if possible, otherwise to the bare wire of the holiday detector ground cable. (Connecting to the bare pipe gives a more accurate reading of the actual working voltage impressed on the coating).



**CAUTION!** TO PREVENT DAMAGE TO THE JEEPMETER, THE INPUT PULSE DC / DC SWITCH MUST BE PROPERLY POSITIONED.

**STEP 6:** Set the input switch to Pulse DC or DC position to match which input terminal is being used.

**STEP 7:** After, and ONLY AFTER, double checking that all the connections in Steps 1 through 6 are correct, place the JeepMeter power switch to “ON” position.

**STEP 8:** After the digital readout settles to zero then power on the holiday detector by switching the holiday detector to the “ON” position. Then read the output voltage directly on the JeepMeter digital display.

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## TO STOP JEEPMETER OPERATIONS

**STEP 1:** Switch OFF the power on the holiday detector.

**STEP 2:** Turn the power “OFF” on the JeepMeter.

**STEP 3:** After steps 1 and 2 are complete, disconnect the test leads and secure the JeepMeter back in its case.

# TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE SOLUTION	CORRECTION METHOD
<b>NO VOLTAGE READING</b>	Wrong Setting Selected	<p>The JM can measure two types of high voltage, DC and Pulse DC. Make sure the correct type is selected on the Pulse DC/DC switch.</p> <p>The 780 is DC.</p> <p>The 785 and 790 are Pulse DC.</p>
	Wrong Connection	<p>High Voltage Pulse DC and DC Voltages have different circuitry to measure voltages and therefore must have different connections on the meter.</p> <p>For the 780 make sure to use the Connection labeled DC.</p> <p>For the 785 and 790 use the Pulse DC connection.</p>
	Low Battery	Replace the two 9V batteries in the back of the unit with new batteries.

# TECHNICAL SPECIFICATIONS

MODEL	JEEPMETER
Measurement Type	DC/Pulse DC
Voltage Range	0-35 kV Pulse DC and 0-7 kV DC
Measurement Accuracy	±5% @ 75 deg F
Display Type	LCD
Battery	Two 9 Volt Batteries
Unit Weight (w/ battery only)	2.6
Unit Dimensions (L x W x H)	8.25" x 8.75" x 4.25"
Factory Warranty	12 Month
Domestic/International Standards Unit Complies With	CE

# MAINTENANCE & REPAIR

If maintained the SPY® Model JM JeepMeter will offer you years of dependable operation. Regular care and maintenance of the unit is a requirement of good quality preventative maintenance practices.



**WARNING!** This voltmeter does not contain any user-serviceable parts; your warranty will be voided if the SPY® unit is opened by anyone other than a SPY® Authorized Service Center or SPY® manufacturing facility.

When equipment service is needed please visit our Services & Repairs page on [spyinspect.com](http://spyinspect.com).

Fill out the online service form, submit, and then follow the instructions provided in the confirmation email that is sent to you. Please check your spam folder if you do not get the confirmation email. If you experience issues with the online service form please call us at 713-681-5837 so we can assist you.

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# WARRANTY

SPY Inspection Equipment, hereafter referred to as (SPY®) warrants that SPY® Model JM JeepMeter shall, under normal use and service, be free from defects in material and workmanship. SPY®'s entire warranty obligation shall be limited to, at SPY®'s option, the repair or replacement free of charge to the buyer of any defective equipment or parts thereof which prove to be defective in material and workmanship under normal use and service.

Claims for defective parts must be made in writing within twelve (12) months after shipment of the equipment from the works of SPY®. Fast wearing and consumable parts including, but not limited to, electrodes and ground cables, are expressly excluded from the warranty. SPY® shall have the option to require return of a claimed defective part to SPY®'s manufacturing facility in the U.S.A., freight prepaid by buyer for examination to establish buyer's claim.

Except with SPY®'s prior written approval, SPY® shall not be liable (a) for the cost of repairs, alterations or replacements or any expense connected therewith made or incurred by the buyer or its designers, or (b) for defects resulting from alterations or repairs made by others than SPY®, or its approved representatives.

SPY® shall not be liable for damages, including but not limited to direct, special, indirect or consequential, resulting from the handling, or use, whether alone or in combination with other products, or any SPY® equipment or third party designed or manufactured equipment, including without limitation, any loss or damage sustained or caused by the operation and use of the equipment which is improperly operated or its successful operation is impaired by natural elements after its delivery to the buyer.

The foregoing warranty is exclusive and in lieu of all other warranties whether written, oral or implied (including without limitation, any warranty of merchantability or fitness for purpose).

## RELATED EQUIPMENT



SPY® MODEL PJM  
POCKET JEEPMETER



SPY® MODEL DCPJM  
DC POCKET JEEPMETER

Please call our office at (713) 681-5837 or email us at [sales@spyinspect.com](mailto:sales@spyinspect.com) for more product details or to place an order.



## USER NOTES

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INSPECTION EQUIPMENT  
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