



INDUSTRIAL DC80

Non-Contact DC Voltage Tester

PATENT PENDING



Operation Manual

Warning

High voltage testing should only be carried out by trained personnel.

Do not hold this instrument in your hand when testing uninsulated voltages above 300VDC.

Fiberglass Operating sticks must be used.

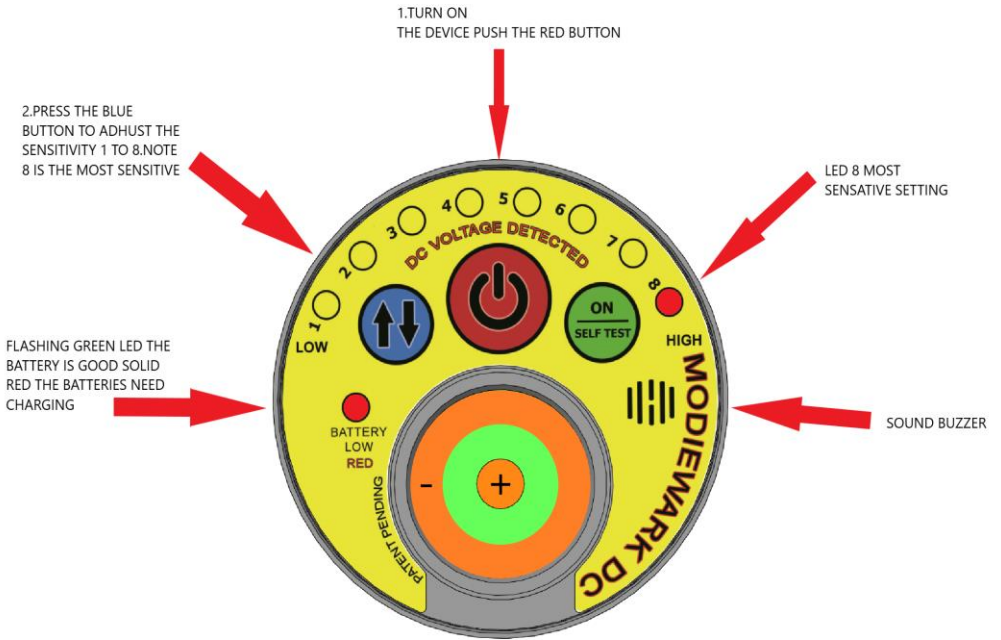
This device is for indication only and should only be used by trained personnel on the safe operations of the device.

Warning. the indicator will not indicate when conductors are in a high field area, close proximity to one another, in a metal case enclosed spaces or in armored metal screen cable.

The DC field can be compromised and the device will not indicate, it is recommended from the manufacturer if adequate space, approach the conductor from 360 degrees and on the high setting get within 5 mm.

Before touching conductors prove the conductor is zero volts using existing convention testing equipment.

Modiewark DC80 Touchpad



Modiewark DC80 Kit



Modiewark DC80 Unit Operations

Turn on the device, press the Power Button.



A single **RED** LED will illuminate



Press the green start self-test button. The unit is now operational.

The **SELF TEST** button can be applied at any time the Indicator is functioning



By pressing the blue arrow up and arrow down button, the single **RED** illuminated **LED** will switch between **L.E.D 8** and **L.E.D 1**.



Note: **LED 8** is the most sensitive and **LED 1** is the least sensitive.

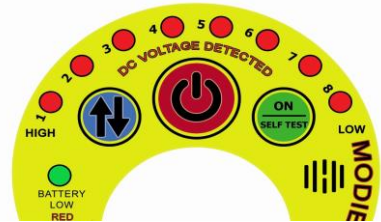
Press the green start self-test button. The unit is now operational.



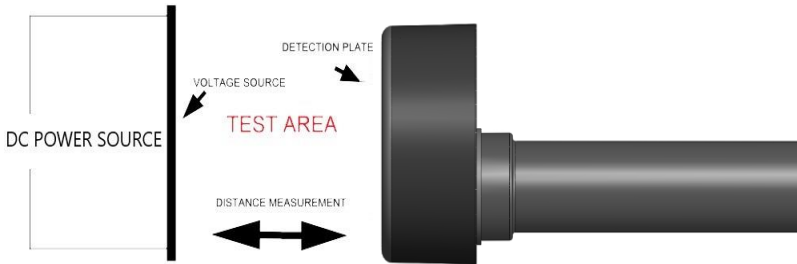
The **SELF TEST** button can be applied at any time the Indicator is functioning.

How to Test

1. Rub the foam lid of the case with your hand to build up static electricity (the more you rub the higher the voltage charge will be) 2000 volts + can be generated.
2. Turn the indicator on and approach the lid, the Indicator will light up as you approach the lid of the case.
3. If the device is functioning correctly the indicator will activate as you approach.



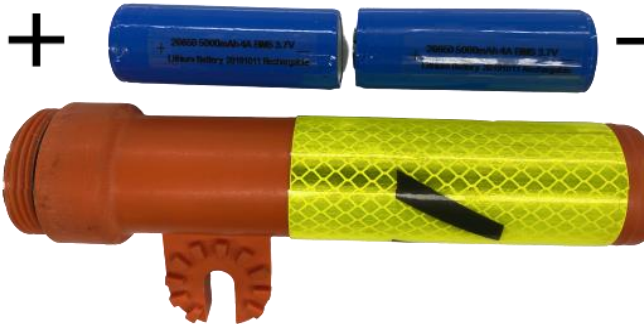
Approach A known live conductor.



As the indicator moves into an electric field the indicators *LEDS* from 1 to 8 will illuminate and an audio alarm will sound.

When all of the *LEDS* up to number 8 are indicated the audio alarm will be on constant.

Insert the batteries correct polarity + to touchpad.



Is the indicator picking up static electricity?

A static charge is on most surfaces.

If you are in an enclosed environment and you turn on the Modiewark indicator and it activates.

Touch the black dissipative cap and the plate, if it has made contact with an object it may be statically charged.

Turn off the indicator and switch the sensitivity setting to a lower setting until the device is stable and you are not picking up a stray field.



Static Electricity 10 volts to 10,000+volts

The Modiewark Industrial DC80 tester is designed to pick up an electric field emanating from an active DC source as low as 50v dc.

Static electricity can be found on almost any surface.

Static electricity is an imbalance of **electric** charges within or on the surface of a material.

The **charge** remains until the indicator is moved away from the area or by means of an **electric** current or **electrical discharge**.

A static electric charge can be created whenever two surfaces contact and separate, and at least one of the surfaces has a high resistance to electric current (and is therefore an [electrical insulator](#)).

The effects of static electricity are familiar to most people because it can be felt, heard and visually seen as a spark as the excess charge is neutralized when brought close to an [electrical conductor](#), or a region with an excess charge of the opposite polarity (positive or negative).

The familiar phenomenon of a static shock – more specifically, an [electrostatic discharge](#) – is caused by the neutralization of charge.

Static electricity is everywhere and is all around us. static electricity can be generated by simply rubbing a piece of plastic on your shirt and removing it.

Dealing with Static charge has been the hardest phase to overcome to manufacture.

How to combat static electricity

Once a DC power source is terminated in a plastic insulated cable, but not earthed (grounded), a static charge remains present on the insulation, this will slowly dissipate over time.

The Modiewark Industrial DC80 indicator will read this static residue left behind and over time the indicator sensitivity lights will stop indicating.

From trials conducted it can take up to several minutes for the static charge to dissipate. The time is dependent on the thickness of the insulating material and its composition.

Earthing the cable instantly removes the static charge in the cable.

Alternatively, you can Spray the target area with antistatic spray.

Approach the area to be tested, if the device alarms, repeat the process until the Modiewark Industrial DC80 does not pick up any signal.

If you test where live DC supply is present and the power is turned off, the indicator will still show a decreasing DC field (static discharge).

If the insulated cable is sprayed with the antistatic spray it will negate the static charge showing the operator that no potential is present.

Usages

- The indicator can be used where DC voltages are present.
- Electric trains 1500 vdc
- Electric trams 600vdc
- Underground mining vehicles 1800 vdc+
- Power station's 50-600 vdc
- Control and switch gear 200 vdc
- Under sea direct current power lines 1000vdc+
- Solar arrays 200 to 1000vdc
- Electronic Environment's where static is an issue.
- Aluminum Smelters
- Aircraft

G.L. McGavin Pty Ltd cannot authorize the method of use. Power distribution authorities have trained personnel who can advise on the operation and use. This document is developed from general principles and it may not be suitable for all conditions and localities contemplated by it. This document may be used only on the condition that G.L. McGavin Pty Ltd disclaims all liability.

DC80 Specifications

Size	225mm Long
Charge Time	2 x batteries 7 Hours
Voltage sensing range	50 to ∞ VDC
Light source	8 high intensity Leds
Sound source	90 db piezo buzzer
Operating temperature	-20 to 65 C deg
Water Resistance	IEC IP6X (Safe when exposed to heavy rain).
Weight	750 g
Power System	Rechargeable Lithium-ion battery 1-day life in rigorous activity.
Battery Life	7 hours
Cap Material	ESD POM (Acetyl) Black
Warranty	1-Year
Handle Material	Glass filled polypropylene
Included in the Shipment	DC Voltage Detector,6 Batteries, Car Charger, Charging Lead, Charger, Manual, Air Pump, Storage Case

DC80 Voltage Detector

Safety Information

DC80 was designed as a DC Proximity device to eliminate the dangers of touch testing and earthing. It should be used by trained and qualified personnel only.

When testing DC circuits always use caution and strictly adhere to proper safety practices.

Above 500VDC proper high voltage procedures for testing should apply.

Wearing personal protective equipment is a necessary safety precaution.

Read the User Manual carefully before using the Indicator.

The DC80 is a Proximity device but if it should ever make contact with a live DC conductor no harm to the Indicator will occur but the Indicator cap will need to be touched to dissipate the Static charge.

Prior to using the DC80 in the field, make sure to test and verify that sensitivity settings are suitable for testing in that location.

Always check that the DC80 is working before using it in on site.

The risk of electrocution is paramount in and around high voltage.

Overview

DC80 is a non-contact DC voltage detector that alerts users when they approach an electrified source. Its advanced notification system is designed to warn the user of the presence of voltage and current within a proximate area. DC internal sensors were designed to detect both electrical (V/m) and magnetic (T) fields. Radiated electric and magnetic fields increase with higher distribution voltages and decrease with distance and/or shielding. Once an energized source is detected, the user is notified first by LED lighting of the approximate distance and then is followed by indicating piezo buzzer. These warnings are shown to the user by the line of LED lights.

Typical Uses

- Identify live conductors.
- Detect residual or induced voltages.
- Identify energized lines after power outages.
- Find energized lines underground.
- Detect energized threats after natural disasters.

A Product of

www.glmcgavin.com.au

All rights reserved © 2018

Warnings

Modiewark Industrial DC80 only detects DC Voltage.

Every energized DC conductor is surrounded by an electric field.

As you move closer to the conductor, the electric field will become stronger.

Lower voltages have a weaker field strength and will have a shorter warning distance.

Electric fields that have a stronger field strength, will have a greater warning distance.

Underground PRIMARY cables are both insulated and shielded. The shield is a conductor, it is grounded, and will nullify the electric field.

Moulded cable terminators such as elbows - like the cables they are installed on - are both insulated and shielded and will nullify the electric field.

Live conductors lying on the ground should be tested where they leave the earth situation for test confirmation.

Electric fields will couple to the ground thus drastically reducing warning distances.

Treat all conductors as "live" unless or until there is a visible break from a live source and a ground is in place.

Always use proper high voltage procedures, including personal protective equipment, when working near or around high voltage equipment or conductors.

Before using DC80 in hand, learn the proper holding method. Not using the proper positioning will prevent voltage from being detected.

Warning distances will be greatly reduced in high humidity and rainy environments.

Never submerge in water. If fully submerged, moisture could enter the enclosure and damage detection sensors leading to reduced warning distances or failure to detect a "live" voltage.

Limited Warranty and Limitation of Liability

1. Effective November 1, 2017, this warranty applies to all products manufactured and sold by G.L McGavin PTY.LTD. (the "Products").
2. NOTICE: READ THIS LIMITATION OF WARRANTY AND LIABILITY BEFORE BUYING OR USING THE PRODUCTS CONTAINED HEREIN.
3. It is impossible to eliminate all risks associated with the use of the Products. Risks of serious injury or death, including risks associated with electrocution, arcing and thermal burns, are inherent in work in and around energized electrical systems. Such risks arise from the wide variety of electrical systems and equipment to which Products may be applied, the manner of use or application, weather and environmental conditions and/or other unknown factors, all of which are beyond the control of G.L.McGavin's Equipment. G.L. McGavin Pty Ltd does not agree to be an insurer of these or other risks and shall have no liability for any claims arising from these or other risks inherent in electrical systems.
4. WHEN YOU BUY OR USE THESE PRODUCTS, YOU AGREE TO ACCEPT THESE RISKS.
5. G.L.McGavin warrants to the original purchaser that the Products will be free from defects in material and workmanship under normal, with regular service and preventative maintenance, for a period of one (1) year from the date of shipment (the "Warranty Period"). Should any failure to conform with this warranty be found during the Warranty Period, you must notify G.L.McGavin of your claim within thirty (30) days of discovery, and within the Warranty Period. Your failure to give notice of claims of breach of warranty within the Warranty Period shall be deemed an absolute and unconditional waiver of claims for such defects. G.L.McGavin will have no responsibility to honour claims received after the date the applicable Warranty Period expires.
6. Upon notice of your claim, G.L.McGavin will provide a return authorization number and further instructions on how to return the product for service. You must follow G.L.McGavin's instruction. You are responsible for all Product removal, handling, re-installation, and shipping (both to and from G.L McGavin.). Products returned for repair, as well as repaired or replacement Products, shall be sent postage /

freight prepaid. After receipt of a product that G.L McGavin determines is defective, G.L McGavin will, at its option, either (1) repair (or authorize the repair of) the Product or (2) replace the Product, subject to the following: The Products are made using parts sourced from a variety of manufacturers. Due to the rapidly changing technology environment, parts may become obsolete / unavailable over time (end of life). In the event that a Product cannot be repaired or replaced due to unavailability of parts, G.L McGavin will use commercially reasonable efforts to obtain substitute parts or conduct work around design, but cannot guarantee its ability to do so.

7. Items not found defective will be returned at your expense, or failing receipt of instruction from you on return of such items within five (5) business days of our notice to you that the product is not defective, G.L McGavin may dispose of the product at its discretion and with no liability to you. G.L McGavin Equipment, determination of defects is final. Products repaired or replaced during the Warranty Period shall be covered by the foregoing warranties for the remainder of the original Warranty Period or ninety (90) days from the date of delivery of the repaired or replaced Products, whichever is longer.
8. LIMITATIONS
This warranty is void in the event of misuse, alteration, faulty installation, or misapplication of the product.
9. This warranty does not cover failure of product or components due to any ACT OF NATURE, including, but not limited to, lightning, floods, hurricanes, tornadoes or any other such catastrophic events.
10. G.L McGavin does not warrant any third-party products or associated hardware or their performance or suitability for use and application.
11. All repairs must be authorized by G.L McGavin. Unauthorized repairs will not be reimbursed under any circumstances.
12. G.L McGavin is not required to make replacement or loaner equipment available while Products are being repaired or replaced, or to compensate you for any in/out labour charges or expenses associated with removal, handling or re-installation of the products.

13. To the maximum extent permitted by law, this warranty and the remedies set forth above are exclusive and in lieu of all other warranties, remedies and conditions, whether oral or written, express or implied.
14. G.L MCGAVIN EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY AND NON-INFRINGEMENT.
15. IN NO EVENT SHALL GL MCGAVIN EQUIPMENT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THESE PRODUCTS. THIS SHALL INCLUDE, BUT IS NOT LIMITED TO, LOST PROFITS OR REVENUE, LOSS OF USE OF THE PRODUCTS, COST OF SUBSTITUTE PRODUCTS, FACILITIES OR SERVICES, OR DOWNTIME.
16. IN NO EVENT SHALL GL MCGAVIN. HAVE ANY LIABILITY FOR ANY THIRD-PARTY PRODUCTS OR ASSOCIATED HARDWARE, OR CUSTOMER-OWNED SYSTEMS, EQUIPMENT OR SOFTWARE.
17. G.L. McGavin must have prompt notice of any claim so that an immediate product inspection and investigation can be made. Buyer and all users shall promptly notify G.L.McGavin of any claims, whether based on contract, negligence, strict liability, or other tort or otherwise be barred from any remedy.

Problem	Solution
All LED lights and buzzer are activated when the device is first turned on	Ground the cap and rotar. Turn the device off and back on, decrease the sensitivity level down, the indicator is picking up an eclectic field, remember the field can also be a static charge. On LED setting 8 the indicator is extremely sensitive.
Device does not power up when red button is depressed.	Try unscrewing the handle anti-clockwise then turn the handle clockwise to tighten to overcome a bad battery connection. Check polarity of battery's are the correct way.
Device does not power up when red button is depressed	Check the battery light is not RED , Replace the batteries ensure the batteries are charged
The blue sensitivity button does not work	Turn the unit off and back on. Return to manufacturer.
Rotor does not spin	Try the above solutions, also Check for obstructions, ensure the rotor has not been bent and is stuck, try and straighten the rotor. Get the rotor to spin freely, or return to manufacturer.
Device has been wet	The electronics in the device have been sealed, Remove the handle (power source). Shake out the device, try and get all of the water out, blow out excess water with air pump, leave in the sun to air dry.
Device is not sensitive enough, and is not picking up power	Restart device, ensure the power source is over 50VDC. The indicator may not indicate if the field is too low to register. Press the green self-button to ensure the unit is functioning correctly. Ensure the indicator is on the high setting (8)
Device does not indicate the cable could be armored	The electric field in the cable has been nullified by the cable shield, the indicator will not work.
The device is picking up a signal too far away to distinguish between conductors	Drop the sensitivity one level at a time, level LED 1 is the least sensitive setting. Only on DC80 Models.
Detector activates when your leg is lifted from the ground, or when walking	By lifting your leg, earth connection has been halved, turn the indicator off and back on and operate with only one-foot touching earth, by restarting the indicator it will automatically readjust to the conditions. recommendations are to use the indicator in stationary position.

It is the manufacturers recommendation that only trained personnel use this equipment.

Ensure the operation manual has been read and understood.

The indicator is designed to be used as a visual and audible alarm device for the protection of the operator.

Contact GL McGavin

E: sales@dn.eng.com.au

Ph: 02 4952 6304

Phone Int: +61 2 4952 6304

F: 02 4956 1054

Int Fax: +61 2 4956 1054

43-45 Orlando Road, Lambton NSW 2299 Australia

PO Box 83, Lambton NSW



G.L McGAVIN

