

SOCKET & SEE™

DIT 400 DIGITAL INSULATION AND CONTINUITY TESTER

USER GUIDE

01/05





Caution

We strongly advise reading and understanding this guide before the instrument is used. In particular note the safety issues that follow:-

Your tester is for use on dead circuits only. Although your Socket & See instrument is fully protected against accidental connection to a live circuit it always pays to check the circuit is dead before working on it.

Your tester is equipped with a very convenient auto test (hands free) feature but do not touch the lead tips when using this feature.

There may be capacitance on the circuit being tested (a longer than normal test time will indicate this condition). Your tester will automatically discharge this but do not disconnect the test leads until this auto discharge has completed.

On the subject of test leads, always check for damaged leads or croc clips - Socket & See replacement lead sets are inexpensive and easy to obtain.

The continuity circuit is fuse protected against accidental connection to mains (unlikely as there will be a warning to indicate live circuit) - if this fuse does blow replace it with the correct type F 500mA fast blow ceramic 500V). It is located inside the battery compartment.



Batteries

Because of storage issues your DIT 400 is not supplied with batteries.

ALWAYS REMOVE THE TEST LEADS BEFORE REPLACING BATTERIES.

Just 4 AA cells are required (alkaline recommended). The battery compartment is at the the back of the instrument, remove the screw (do not lose it) - slide the battery cover off and carefully insert batteries observing correct ploarity. Replace cover and fix screw back in.

4 good quality AA alkaline cells should give 5000 tests at 500V DC.

Note: Access to the protective fuse is also gained through the battery compartment. Always replace with the correct type - F 500mA Fast Blow Ceramic 500V.

Operation Overview

If you are experienced in using insulation and continuity testers your DIT 400 will power up and default to a mode you are totally familiar with (we call it 'CERT' - Certification mode).

If you are experienced we suggest you use this mode (the tester will always default to this mode when you power up) for the first few jobs to familiarise yourself with how quickly your Socket & See DIT 400 works.



Then we believe you will want to explore our SFS (Super Fast System mode) since if you think the 'CERT' mode is fast - SFS delivers super fast results based on

GO-NO-GO technology. SFS 'looks' straight at a value - in the case of insulation for example the value is $2M\Omega$ (as recommended in most codes of practice).

If the insulation value is below $2M\Omega$ (bad) the display will show $<1.99M\Omega$ and give an audible warning tone.

If the insulation is above $2M\Omega$ (good) the display will show $>2.00M\Omega$ and give a continuous tone.

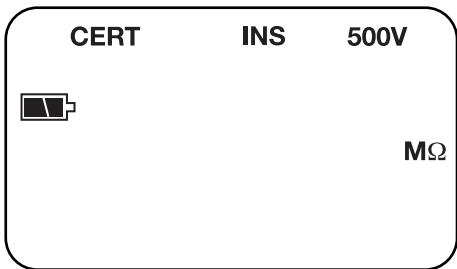
This will typically take less than one second saving you time and greatly extending battery life. You will find the same SFS system operates for Continuity Testing.

Operation - A Detailed View



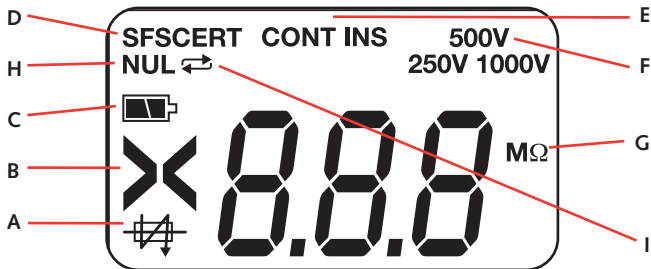
LIVE CIRCUIT WARNING


1. If this is alight - DO NOT PROCEED you are connected to a live circuit. This useful indicator will also show if a (capacitive) circuit under test is fully discharged **before disconnecting any test leads.**
2. LCD Display. When power up (Power ON/OFF) is selected your Socket & See DIT 400 will default to symbols CERT, INS, 500V this means it is ready to perform a 500V insulation test in Certification mode and it will do this test when you briefly hit button 9.



This is how the display will look when you first power up the instrument.

Overview of the Display



- A. Fuse Broken DO NOT PROCEED
- B. > Greater Than / < Less Than
- C. Battery Condition ( = good).
- D. Test Mode - **SFS** - Super Fast System or **CERT** - Certification
- E. Measuring Mode - **INS** - Insulation or **CONT** - Continuity
- F. Insulation DC Volts Test Pressure - **250 - 500 - 1000V DC**
- G. Measuring Units - **MΩ** - Insulation - **Ω** - Continuity
- H. **Nul** Function - (Continuity only) Nuls and stores Ohms value of the test leads for the testing session you are in (automatically resets to zero on switch off)
- I. **Auto** Test (Hands Free) Selected

3. Power ON/OFF - Pressing and releasing this button turns the DIT 400 on - holding down for longer than 2 seconds turns the unit off (plus Auto Power Off is incorporated).
4. This button selects Insulation Testing Mode (your DIT 400 defaults to Insulation Test 500V DC on Power On).
5. This allows selection of insulation test voltage
250V DC for SELV and PELV circuits
500V DC (default) for circuits up to and including 500V with the exception of the above systems
1000V DC for circuits above 500V
(SELV = Separated Extra-Low Voltage. PELV = Protective Extra-Low Voltage).
6. Selects Continuity Test Mode.
7. CERT/SFS Mode (Certification/Super Fast System) - This is the heart of your Socket & See DIT 400 tester. (On switch on your DIT 400 defaults to Certification mode. In CERT (Certification) mode the DIT 400 will record results (with accuracy FULLY COMPLIANT with BSEN 61557). To allow completion of certificates requiring recording and logging of absolute values for insulation or continuity testing.

In SFS (Super Fast System) mode the DIT 400 uses NEW Patented Technology to deliver a super fast result. It does this by going straight to the critical measurement point of $2M\Omega$ as recommended in codes of practice.

Insulation test less than $1.99M\Omega$ gives a bad result (FAIL) and greater than $2.0M\Omega$ good (PASS).


SFS Continuity Test is less than 2Ω good (PASS) higher than 2Ω bad (FAIL)

If there is a FAIL result in SFS mode a quick switch to CERT mode will reveal the extent of the problem. In addition an audible signal clearly indicates PASS or FAIL.

8. Continuity Test Lead NULL - In order to give accurate continuity resistance results your tester will record the resistance of the test leads - store it and automatically subtract the stored value from any continuity measurement being made. To NULL the leads hold the test lead tips together very firmly with one hand and press the NULL Button - the result will be displayed - continuity testing will then subtract this stored value whenever Test Button 9 is pressed - the value is reset to zero after Power OFF (or Auto Power OFF) is selected.

9. The Push To Test Button performs two functions:-

A brief push (less than one second) initiates the test and automatically captures the result (which stays on screen until the next test, Power OFF or Mode change).

For Auto Test the button is held down for longer than 2 seconds at which point  is displayed in the LCD - you now have Hands Free - when the probes are touched onto any two test point your DIT 400 will carry out an automatic test and capture the result for as long as the probes are held in contact. Hands Free works in Insulation Cert Mode only.

A brief push on the Test button unlocks Hands Free mode.

At Socket & See our Engineers constantly look for improvement. If there is any aspect of your Socket & See tester you would like to comment on please visit our website at www.socketandsee.co.uk or email davidh@kewt.co.uk or Free Fax at 0800 7831385 with any suggestions.

We promise all communications will be acknowledged. We value YOUR opinion.

Insulation Test Ranges

Accuracy (Cert mode)

Test Voltage	Ranges (Auto Range)	Tolerance (@20°C)
250V	0.01 to 9.99MΩ	± 3 % ± 1 digit
	10.0 to 99.9MΩ	± 3 % ± 1 digit
	100 to 199MΩ	± 6 % ± 1 digit
500V	0.01 to 9.99MΩ	± 3 % ± 1 digit
	10.0 to 99.9MΩ	± 3 % ± 1 digit
	100 to 199MΩ	± 3 % ± 1 digit
	200 to 499MΩ	± 6 % ± 1 digit
1000V	0.01 to 9.99MΩ	± 3 % ± 1 digit
	10.0 to 99.9MΩ	± 3 % ± 1 digit
	100 to 399MΩ	± 3 % ± 1 digit
	400 to 999MΩ	± 6 % ± 1 digit

Output Voltage (Cert and SFS mode)

Voltage	Load	Output Current	Tolerance
250	250kΩ	1 mA	-0% +20%
500	50kΩ	1 mA	-0% +20%
1000	1MΩ	1 mA	-0% +20%
Short circuit current (in to 2kΩ)			<2mA
Typical Test Time (cert mode) (10MΩ)			<2 sec
Typical Test Time (SFS mode) (10MΩ)			<1 sec
SFS Threshold			2MΩ

Continuity Test Ranges

Accuracy (Cert mode)

Ranges (Auto Range)

0.00 to 9.99 Ω

10.0 to 99.9 Ω

100 to 999 Ω

Open Circuit Voltage

Short Circuit Current

Zero offset Adjust (Test Lead Null)

Typical Test Time (Cert mode) (2 Ω)

Typical Test Time (SFS mode) (2 Ω)

SFS Threshold

Tolerance (@ 20°C)

$\pm 3\% \pm 2$ digits

$\pm 3\% \pm 2$ digits

$\pm 3\% \pm 2$ digits

>4V, <10V

>200mA

2 Ω

<2 sec

<1 sec

10 Ω

Power

4 x AA alkaline batteries (not included)

Battery Life (BS EN 61557) > 5000 tests @ 500V test voltage

Environmental

Operating Temperature Range

0°C to 40°C

Storage Temperature Range

-10°C to 60°C

Size

157mm x 89mm x 39mm

Weight

400g

SOCKET & SEE

PUT US TO THE TEST

- Non-Trip Loop Testers
- Insulation/Continuity Testers
- 110V / 230V / 400V Socket Testers
- Phase Finders
- Dead Circuit Finders
- Live Circuit Finders
- Multimeters
- and much more...



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