



Testing and Tagging

A guide – Test and Tag Supplies, QLD

Test and Tag – an introduction

Meeting health and safety requirements for your business and employees can be a daunting task. We're required to meet numerous regulations and standards - all of which contribute to ensuring our safety in the workplace. Electrical appliance safety is one of the many areas which needs particular focus.

'**Test and Tag**' is the name commonly given to the process of ensuring your electrical equipment and appliances are safe to use in the workplace.

Compliance

The specification for 'testing and tagging' is documented in the Australian and New Zealand standard **AS/NZS3760:2003 – "In-Service safety inspection and testing of electrical equipment."**

This standard specifies the requirements and processes to be undertaken to facilitate 'in-service' safety inspection of portable electrical appliances. Its format provides individuals with the appropriate information to carry out testing, without necessarily having formal qualifications or complex electrical test equipment.

Excerpt from forward:

"The philosophy of the document is to provide an inspection and testing regime capable of implementation with only simple instrumentation, and performed by a person not necessarily having formal qualifications or registration, but who has the necessary practical and theoretical skills, acquired through training, qualification, experience or a combination of these, to correctly undertake the tasks prescribed by this Standard."

"If implemented effectively, testing in-house can deliver a number of benefits including flexibility, control and long term cost saving."

info visit www.standards.com.au

However, it is important to note, that while the standard outlines the methodology of testing and inspection, it does not specify the state regulations applicable regarding workplace and electrical safety. Local regulation may differ from the information indicated in the standard. **It is therefore imperative that your business is familiar with the government health and safety regulations which apply to the industry in which your business operates.**

For more information on this, please refer to government issued literature and seek professional legal advice.

info see appendix for local regulatory body contact details

Meeting regulation

Some businesses choose the services of electrical contractors and electrical safety specialists to maintain compliance to the applicable standards and regulation. However, it can alternatively be managed in-house with the use of test equipment or **Portable Appliance Testers (PAT)**.

If implemented effectively, testing in-house can deliver a number of benefits including flexibility, control and long term cost saving.

Benefits of testing in-house

Control

By testing in-house, you'll gain the flexibility of testing when you want and where you want. Testing can be controlled by your own staff. You'll be able to manage your testing schedule to your needs, ensuring it is carried out at convenient intervals for your business.

Flexibility

You'll also be able to test appliances at a moments notice. If you're ever unsure of an appliances electrical safety, you'll be able to test it immediately, preventing the need to take the appliance out-of-service.

“Broadening your staff skills and responsibilities can deliver increased retention levels and higher productivity.”

Asset register

With a recording test and inspection software, all of your appliances can be logged into the database. You'll know where to find each appliance and more importantly, when they next need to be tested. Testing software can provide reports on your assets and locations, so you'll have a complete over view on your electrical assets at any time.

Staff retention and development

Broadening your staff skills and responsibilities can deliver increased retention levels and higher productivity. Testing and tagging will add your employee's existing skills. Low cost training through TAFE colleges can deliver additional training for new members of staff. Alternatively there are a number of private organisations who can assist with training facilities.

What should I consider?

For a smaller organisation, bringing 'testing and tagging' in-house can be an easy decision to make. But for a larger organisation there are a number of issues to first consider. The final decision will always need to be balanced across a number of internal factors. Here are some of the obvious ones to consider:

- Will it be cost effective?
- Do we have the resource required?
- Do we have the skills or access to appropriate training?
- Can we manage a robust test and inspection program?
- Do we already operate an asset maintenance program?
- Do we have the available funds?

info we can help you evaluate the cost effectiveness of testing in-house

Who can 'test and tag' in my business?

The AS/NZS3760:2003 states that testing must be carried out by a 'competent person'. That person should be able to use test equipment safely and effectively, must have an understanding of the construction of the equipment, the requirements of the standard, the dangers of electricity and the legislative requirements (see footnote).

We strongly recommend that full training is provided to those intending to 'test and tag' unless they already possess the necessary skills and experience.

What does testing and tagging involve?

In its simplest form, testing and tagging is the inspection and testing of portable appliances in the workplace. The visual inspection of appliances is often given less prominence than the electrical testing - but is actually one of the most important aspects of 'testing and tagging'. It is sometimes estimated that over 90% of electrical faults can be identified with a visual inspection of the item.

The core activities associated with testing and tagging are:

Testing and Inspection

Portable appliances are visually inspected before being tested to ensure electrical safety. The electrical safety of an appliance is usually measured using the following tests:

- Earth Continuity (of earthed appliances)
- Insulation/leakage (of all appliances)
- Polarity (of extension leads and power cords)

In most instances, these tests can be carried out with simply an insulation and continuity meter – commonly known as a ‘Megger’.

However, Portable Appliance Testers ‘PAT’ provide, speed, safety and convenience, providing a ‘pass’ or ‘fail’ result within about 5 seconds - using an ‘auto-test sequence’. Most PAT’s are also capable of testing for current leakage during a ‘run test’. Note: This test is required on appliances which cannot be turned on with a mechanical switch. Some PAT testers can additionally record result data for download to a PC.

“While the requirements are reasonably straightforward, it is the recording aspect of testing and tagging which can prove the biggest decision for businesses”

Tagging

Once tested and determined safe, appliances are tagged, indicating that they’ve been passed as electrically safe (at the time of testing). The tags applied are usually self-adhesive or clip-on vinyl. They typically feature the following information:

- Company name (sometimes printed)
- Name of person testing
- License or contract number of person testing
- Test date
- Next test date

Recording

A register of appliances tested is one of the most important aspects of ‘testing and tagging’. A register of all equipment tested should be kept, along the test and inspection details and detail of any repairs.

While the requirements are reasonably straightforward, it is the recording aspect of testing and tagging which can prove the biggest decision for businesses – especially those with a large number of appliances. Not only will the chosen solution of recording determine the equipment required, it will also have a large impact on the investment required.

What are the associated costs of testing and tagging?

While the initial cost of hardware will play a large part in the overall costs of bringing testing in-house, there are also a number of other, on-going costs which should be considered.

Test tags

Test tags are usually pre-printed and can be purchased in packs of 100. Although the cost of test tags are normally fixed, Test and Tag Supplies QLD lower the cost according to volume purchased. This can significantly lower operating costs and test tags can start from as little as 27 cents per tag when purchased in packs of 10,000.

It’s also worth remembering that if you purchase your test tags from Test and Tag Supplies, we can put your company logo on your test tags for very little, or even no extra cost.

info *contact us for information on customized test tags*

Barcodes

Barcodes are required for many asset register systems. These systems can massively cut down the amount of administration and recording time. Although relatively inexpensive (at about 25 cents per barcode), the cost needs to be considered when budgeting.

Calibration

All electrical test equipment should be calibrated regularly to ensure they're working to the correct parameters. Portable Appliance Testers are no exception and usually require annual calibration. Calibration costs are typically around \$100.00 - \$250.00. The process normally takes about a week so some downtime should be considered.

info Test and Tag Supplies can help with loan units – ask for more info

Log Books

If you're not intending on using test and inspection software, log books can be an on-going cost. Log books typically hold information on 100 appliances over approximately 25 tests.

Service

PAT testers are usually reliable (providing they're serviced and calibrated on a regular basis). But as with all electrical appliances, PAT testers can malfunction. While usually repairable, the costs need to be considered.

What equipment should I consider?

Before making a decision on the equipment to be purchased there are a number of factors to think about. Portable Appliance Testers can be a significant investment - so it's important to keep in mind your current requirements, and your future requirements. These are some of the factors that will influence your decision:

- Which type of appliances will be tested
- Number of appliances to be tested
- Number of sites at which appliances are held
- The frequency of testing required
- The environment in which testing will be carried out
- The skills and experience of the individual testing
- Existing asset or maintenance systems in place
- The budget available

We strongly recommend that you consult with specialist providers before making a decision. More importantly, remember that many providers only sell one brand of equipment (their own). Not all manufacturers offer the same solutions or quality of product - so, make sure you also speak to an independent supplier who has a range of different manufacturers equipment – like us!

info we can provide free advice on equipment and software

What different types of recording system are available?

There's a huge range of recording systems to choose from. Bearing in mind the cost, this is one of the most important decisions to get right.

The choice of the most appropriate system for your business will depend heavily on your budget, and what existing systems you have in place for asset management.

“Portable Appliance Testers can be a significant investment - so it's important to keep in mind your current requirements and your future requirements”

Log book and pen

The log book and pen is still a very practical way of recording results. While digital recording systems may make it easier to locate and manage your appliances, if you've got under 100 appliances, you'll find it difficult to justify any other way of recording. What's more, the log book and pen is still one of the most portable methods of recording too.

Don't be blinded by the new technology offered – a pen and paper is still usually cost effective and easy!

Desktop based 'standalone software'

Standalone software (eg Trio Inspect) allows you to manage your records quickly, efficiently and without 'costing the earth'.

Rather than interfacing with a Portable Appliance Tester, these systems operate on a standalone PC. Test agenda's can be printed out for any client's sites, making the audit and location of appliances easy.

Results are hand written on to the test agenda sheets for entry into the PC at a later stage. This method of recording makes a cost effective alternative to log books although the entry of information into the software at a later stage can use valuable resource.

Data collection devices can also be used with the software along with pre-printed barcode labels to enable remote testing - away from the PC, although these can be an expensive alternative to recording testers.

However, a more popular use of this software is by installing it on a laptop PC and using the laptop as the data collection device (along with pre-printed barcodes and a USB scanner). This makes a very cost effective way of recording your testing activities while maintaining a thorough, easy to manage database.

Personal Digital Assistant (PDA's)

There are a number of software packages, specifically designed for 'testing and tagging' which now adopt PDA's as portable collection devices. The added portability and versatility of a PDA make this an attractive option.

Assets, locations, appliance details and test results can be recorded on the PDA. However, the cost of the software and the PDA can often exceed that of a top-of-the-range tester in the first place. So, consider whether this really is the most cost effective and efficient solution for your business.

"testers are now available which can record and store results, and asset information for download into a standard file format – requiring no industry specific software"

If your business operates an asset maintenance system already (using PDA's), this might be an ideal way to record test results without the need to purchase any new software or hardware.

Downloading Portable Appliance Testers (without memory)

Some Appliance Testers have a 'download' facility which exports test results to a PC following the test. This is done on a test by test basis – the appliance tester has no memory.

While this partly automates the process - and allows test records to automatically be entered in to the PC, it also requires the presence of a PC or laptop (at the point of testing).

Of course with these systems, and Trio Inspect, the added benefit is that desktop printers can be used with the laptop or desktop PC allowing the printing of test results (or even tags) at the point of testing.

Downloading Portable Appliance Testers (with memory – generic file format)

Appliance testers are now available which can record and store results and asset information for download into a standard file format – requiring no industry specific software. Testers such as the Trio SafeTcheck can record information directly from a PC using a standard PS/2 keyboard and scanner for download to a PC following a test session.

Records can be managed in Excel or Access once imported from the Comma Separated file format. Pre-printed barcodes are used to identify appliances which can be wrapped around the power cord.

These systems are proving popular due to their portability and low cost (although results need to be managed carefully in the absence of an asset maintenance system).

info Contact us for more information on the Trio safeTcheck

Downloading Portable Appliance Testers (with memory)

Portable Appliance Testers with memory are used when hundreds (or thousands) of appliances must be managed across several sites. The benefit of such systems is that detailed information about the appliance, and test results can be recorded (and recalled) if required.

These Portable Appliance Testers can also be pre-programmed to test to specific parameters by the user. Tolerances differing to those specified by regulation can be chosen, and custom test sequences programmed.

However, such testers are not cheap. And, it's not only the hardware that's expensive. Some software packages can cost in excess of \$2000.00 too. Also, the file formats output by this type of tester are also frequently manufacturer specific, so compatibility with existing asset maintenance systems is unlikely.

“The real benefit is gained on re-test, when an item can simply be scanned, inspected and tested”

One significant added benefit of recording systems is that some can output to thermal printers for test tag production.

However there are a number of issues to consider when choosing such a system:

- Not all recording testers can be linked to a printer
- Not all printers can print test tags – some only print barcodes
- Not all recording testers can up-load information, some only download
- Not all recording software can identify a retested item from a new item
- Printing systems are less portable
- Recording testers are generally not compatible with other manufacturers printers
- Printed tags can be less robust than handwritten test tags

Before deciding if recording and printing system is right for your business, consider the initial and on-going costs. Although the tags are cheaper to print, return on investment can sometimes take in excess of 10,000 tests (compared with a non printing recording system).

Is a recording/printing system always faster?

No – not always. Printing systems can reduce the amount of handwritten information, but during the initial test sessions a large amount of information needs to be entered. This process can be slow.

The real benefit is gained on re-test, when an item can simply be scanned, inspected and tested. Most recording testers can ‘recall’ the previous test performed on that appliance and perform the same test again. This is done either by uploading previous results from a PC or by using information stored in the barcode.

So what should I expect to pay for a PAT?

Here's a rough indication of what it will cost for a PAT system:

Price	What it will buy?
\$350.00 - \$500.00	An insulation meter, 100 test tags and a log book
\$650.00 - \$900.00	A Portable Appliance Tester (without current leakage, 100 test tags and a log book)
\$950.00 - \$1600.00	A Portable Appliance Tester with current leakage testing, 100 test tags and a log book)
\$1700.00 - \$2000.00	A recording tester with memory, high current earth test and leakage testing
\$2000.00 - \$2500.00	A recording tester with memory, high current earth test, RCD testing, current leakage testing
\$1900.00 - \$3000.00	A programmable recording tester with memory, high current earth testing, current leakage testing
\$4000.00 - \$8000.00	As above with a tag printing system

info see our product brochure for more information on different types of tester

Appendix

Regulatory Authorities

Queensland

Postal Address: GPO Box 69
Brisbane Qld 4001
Telephone: (07) 3237 0220
Facsimile: (07) 3237 0229
Website: www.eso.qld.gov.au

New South Wales

WorkCover Authority

Postal Address: Locked Bag 2906,
Lisarow NSW 2252
Phone: 13 10 50
Website: www.workcover.nsw.gov.au

Victoria

Victorian WorkCover Authority

Address: Level 24, 222 Exhibition St
Melbourne 3000
WorkCover Advisory Service
Ph (03) 9641 1555
Fax (03) 9641 1222
Website: www.workcover.vic.gov.au

Australian Capital Territory

ACTPLA

Address: Central Office, Ground Floor, North,
Dame Pattie Menzies House,
16 Challis Street Dickson
Phone: (02) 6207 1926
Fax: (02) 6207 1925
Website: www.actpla.act.gov.au

ACT Workcover

Address: PO Box 224
Civic Square ACT 2608
Telephone: (02) 6205 0200
Facsimile: (02) 6205 0336
Website: www.workcover.act.gov.au

Commonwealth OH&S regulator, Comcare

Address: GPO Box 9905
Canberra ACT 2601
Telephone: 1300 366 979
Facsimile: (02) 6257 5634
Website: www.comcare.gov.au

Tasmania

Workplace Standards Tasmania

Address: PO Box 56
Rosny Park TAS 7018
Telephone: 1300 366 322
Facsimile:
Website: www.wsa.tas.gov.au

Northern Territory

Electrical Safety Office

Address: GPO Box 4821
Darwin NT 0801
Telephone: (08) 8999 5010
Facsimile: (08) 8999 6260
Website: www.deet.nt.gov.au/wha/pages/electrical

South Australia

Office of the Technical Regulator (SA)

Address: Level 19 Wakefield House
30 Wakefield Street
Adelaide SA 5000
Telephone: (08) 8226 5500
Facsimile: (08) 8226 5523
Website: www.technicalregulator.sa.gov.au

Western Australia

Electrical Work is also subject to the terms of the Occupational Safety and Health Act 1984 and the Occupational Safety and Health Regulations 1996, which are administered by WorkSafe Western Australia.

Energy Safety Directorate

Address: West Leederville Office (Head Office)
20 Southport Street
WEST LEEDERVILLE, Western Australia 6007
Phone: (08) 9422 5200
Facsimile: (08) 9422 5244
Website: www.energysafety.wa.gov.au

Work Safe Western Australia

Address: PO Box 294
WEST PERTH WA 6872
Telephone: (08) 9327 8777
Facsimile: (08) 9321 8973
Website: www.safetyline.wa.gov.au

New Zealand

The Energy Safety Service of the Ministry Of Economic Development is the Electrical Safety Regulator in New Zealand.

Energy Safety Service

Address: 33 Bowen Street
Wellington
New Zealand
Postal Address: PO Box 1473
Wellington,
New Zealand.
Telephone: + 64 4 472 0030
Facsimile: + 64 4 460 1365
Website: www.ess.govt.nz