

Safety Warnings and symbols used

The following safety warnings and precautions must be read and understood before the instrument is used. They must be observed during use.

- For safety, only connect the PAT to a supply that is properly earthed. If in doubt, the supply should be checked by a qualified electrician.
- Do not use the instrument if there are any signs of damage.
- All test leads, probes and clips must be in good order, clean and with no broken or cracked insulation.
- Probes and clips should be held behind the finger guard.
- Test leads not used during a measurement should be disconnected from the appliance tester.
- For dual voltage testers, both sockets can be live simultaneously.
- Only connect one asset to the PAT during testing.
- Tests should be carried out in the order recommended below. An appliance that fails a test should be repaired before further testing is carried out.

Recommended Sequence:

1. Earth Bond/ Continuity of the protective earth conductor (Class I devices)
 2. Insulation test (or earth leakage)
- In addition further tests can be performed
3. Operation test
 4. Leakage test
- Only perform an operational test after the earth bond and insulation tests have been completed, as this test operates at mains voltage.
 - During testing, ensure no hazard will exist as a result of normal running or under fault conditions.
 - During testing the unit under test (asset) should not be touched, other than using the appropriate accessories, as faulty appliances can present a shock hazard.
 - Do not touch the exposed parts of test leads during tests as hazardous voltages may be present due to a potentially faulty appliance.
 - Do not touch the IEC extension lead socket pins especially during a test, as hazardous voltages may be present due to a potentially faulty appliance
 - Assets should not be routinely Flash tested. Where flash testing is required, refer to further guidance on Flash testing, section 4.5 in the user guide.
 - Replacement fuses must be of the correct rating and type. Refer to section 6.3 in the user guide.
 - The USB connection should only be used by approved service personnel, nothing should be connected to the USB port during testing.
 - Only use NiMH rechargeable 9V PP3 battery, do not use a non rechargeable type as this could become dangerous if charged by the instrument.
 - Serviceable fuses should only be replaced with those that are suitably rated
 - In case of an emergency use an easily accessible power point

Safety symbols used on the instrument

- Caution: risk of electric shock
- Caution: refer to accompanying notes. When displayed at the start of an insulation test, warns that a hazardous voltage may exist at the test lead probes

Equipment complies with the relevant EU Directives

- Fuse
- HV test lead in unlocked position
- HV test lead in locked position
- Battery type fitted
- DO NOT connect to 230 V supply

Battery function - A 9 V PP3 rechargeable NiMH battery is supplied to allow fast restart should the PAT be unplugged and reconnected to an electrical supply in less than 5 minutes.

Battery replacement

Warning: Do not switch the instrument on with the battery cover removed or test leads connected.

Only use NiMH rechargeable batteries.

1. Switch off the instrument and disconnect the instrument from any electrical circuits.
2. Remove the battery cover.
3. Remove the old battery and refit a new one, observing the terminal polarity.
4. Replace the cover and retaining screw.

Fuse replacement

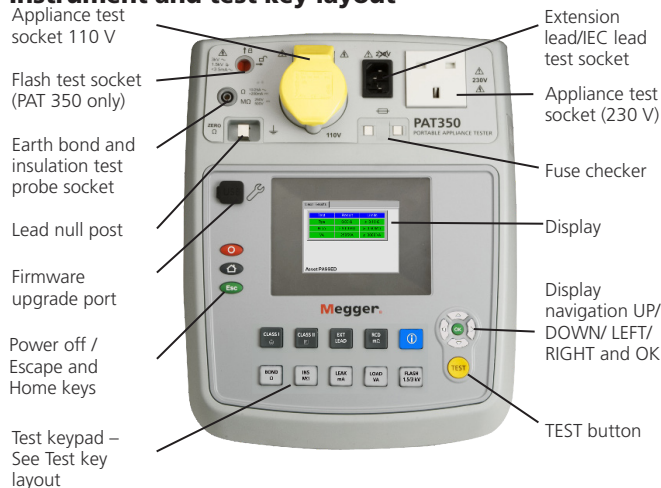
Warning: Do not switch the instrument on with the fuse cover removed or test leads connected.

1. Switch off the instrument and disconnect (the instrument) from any electrical circuits.
2. Remove the fuse cover.
3. Replace the blown fuse with the correct type and rating.
4. Replace the fuse cover.

GETTING STARTED

NOTE: Do not connect any equipment until the PAT tester has been switched on and passed a self test.

Instrument and test key layout



Note: The PAT320 does not include the Flash test option.

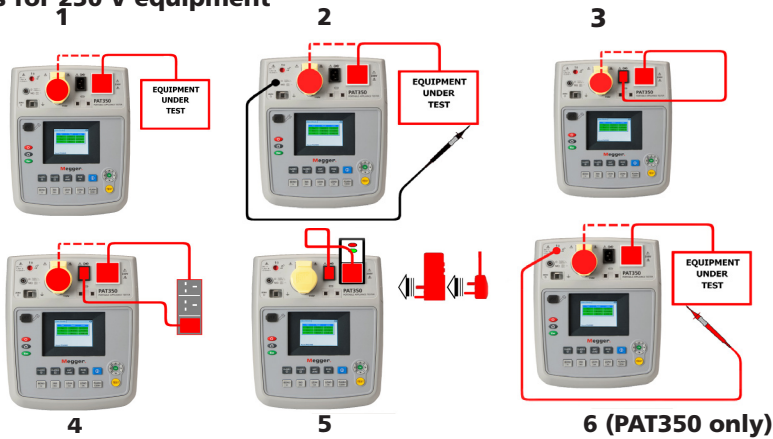
TEST KEY LAYOUT



Test groups summary

Test group 1 to 5		Description
1	Class I test	For testing assets with an earth return conductor
2	Class II test	For testing assets without an earth return conductor
3	IEC lead and	For testing extension leads and IEC type power leads
	Extension lead test	(found on computers, kettles etc)
4	RCD tests	For testing Plug-in RCDs and extension leads fitted with RCDs
5	Information	Provides technical support details
Individual tests 6 to 10		
6	Bond Ω	Performs an earth bond/continuity test at 200 mA, 10 A or 25 A
7	INS MΩ	Performs an insulation test at either 250 V or 500 V
8	LEAK mA	Performs an earth leakage test
9	LOAD VA	Performs a RUN test and measures the power drawn
10	1.5 kV/3 kV	Performs a flash test at the required voltage

Connection options for 230 V equipment



Note: 110 V equipment connects to the 110 V socket. The PAT must be supplied from 110 V to test 110 V appliances. An optional adaptor is available to allow the fixed lead of the PAT to be connected to a 110 V socket.

Test options – Class I, Class II, RCDs, IEC leads and extension leads

All tests assume the PAT is operating in AUTO mode. For manual mode and test options refer to the full user manual.

TEST options	Tests run	Connection required:
CLASS I		
 	BOND	(2)
	INS	(1)
	LOAD	
	LEAK	
CLASS II		
 	INS	(2)
	LOAD	(1)
	LEAK	(2)
	(Touch)	
IEC LEAD		
 	BOND	(3)
	INS	
	Polarity	
EXT LEAD		
 	BOND	(4)
	INS	
	Polarity	

TEST options	Tests run	Connection required:
RCD		
 	$\frac{1}{2} \times I$	(5)
	$1 \times I 0^\circ$	
	$1 \times I 180^\circ$	
	$5 \times I 0^\circ$	
INS MΩ		
Select Class/voltage and supply type	Insulation	CLASS I CLASS II
 	250 V	(1) (2)
	500 V	
BOND Ω		
Select test current	Earth continuity	CLASS I CLASS II
 	25 A	(2) N/A
	10 A	
	200 mA	

TEST options	Tests run	Connection required:
LOAD VA		
 	Load test	CLASS I CLASS II
	mA	(1) (1)
LEAK mA		
Select leakage type and Class type	mA Leakage current	CLASS I CLASS II
 	I-diff	(1) (2)
	I-touch	
	I-sub	
FLASH		
Select test voltage and Class type	1500 V 3000 V	CLASS I CLASS II
 	Flash test	(6) (6)

Warning: Flash testing is a destructive test. Repetitive use can cause damage to the equipment. Flash testing should not be used for routine testing