



## Vision meets Precision

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## Vision meets Precision

Testen elektrische veiligheid  
echotoestellen met de ESA-612



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Waar wordt de Fluke tester  
en Ansur software ingezet

- Fluke ESA-620
- Fluke ESA-612
- Ansur software V2.9.7

Toshiba Medical Systems Europe  
Toshiba Medical Systems Portugal  
Toshiba Medical Systems Spanje  
Toshiba Medical Systems Belgie  
Toshiba Medical Systems UK  
Toshiba Medical Systems Zwitserland

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## Wanneer wordt de ESA-612 ingezet

- Onderhoudscontrole
- Na reparatie werkzaamheden (vervangen van boards, monitor, panel of powersupply)
- Aflvering of demo installatie
- Geconstateerde beschadigen aan transducers

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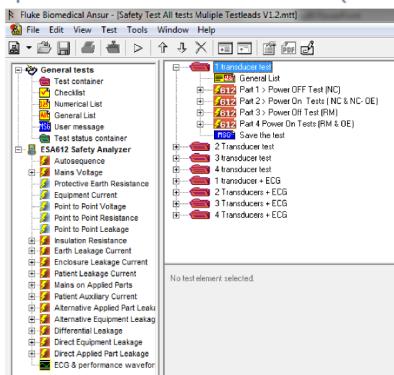
## Waar moet een test protocol aan voldoen?

- Mogelijkheid om 1-4 tranducers te testen
- In/uitschakelen netspanning
- Tijdens test mogelijkheid tot activeren transducer
- Testresultaat in \*.mtr en \*.pdf

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## Testprotocol 1-4 transducer (evt ECG)



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Welke aansluitingen worden gebruikt



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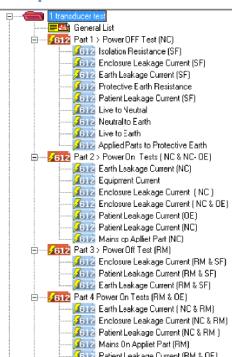
Welke aansluitingen worden gebruikt



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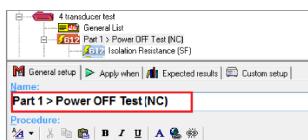
Test protocol in detail



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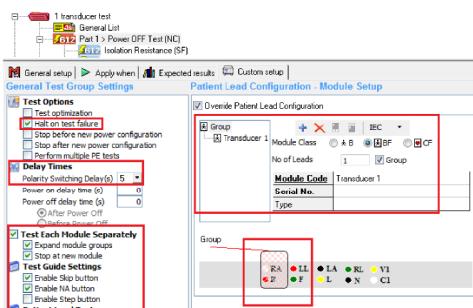
## General Setup: Power Off Test



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## Custom setup: Power Off test 1 transducer



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## Custom setup: Power Off test 1 transducer



Delay 5 sec voorkomt uitschakelen aardlekschakelaar

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### Custom setup: Power Off test 4 transducers

The screenshot shows the 'Patient Lead Configuration - Module Setup' interface. At the top, there's a tree view of test items under 'Part 1: Power OFF Test (N)'. Below it, the 'General Test Group Settings' tab is selected. In the center, the 'Patient Lead Configuration' section is displayed, showing a table for 'Module Code' (Transducer 1) with 'Module Class' set to 'A-B' and 'No of Leads' set to 1. A red box highlights the 'Module Code' row. At the bottom, a legend identifies lead colors: RA (red), LL (green), L1 (purple), RL (blue), V1 (yellow), and C1 (orange).

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### Apply When: Power off test

The screenshot shows the 'Apply when performing' section. It includes a dropdown menu with options: 'Power' (selected), 'User defined', and 'IEC 60601'. A red box highlights the 'User defined' option.

Voor elke testcontainer is een service event gemaakt zodat bij de Start van de test een keuze tussen 1-4 tranducers kan worden gemaakt.

The screenshot shows the 'Service events' section. It lists several options for different numbers of transducers: '1 transducer', '2 transducers', '3 transducers', '4 transducers', and '1 transducer + ECG'. A red box highlights the '1 transducer' option.

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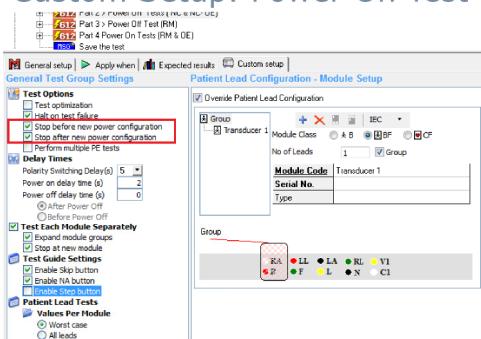
### Expected Result: Power off

The screenshot shows the 'Expected results' section. It includes a table for 'Limit' with rows for 'General test element setup (S3)' and 'Body'. The 'Body' row has a red box around it. The table columns are 'Limit', 'High', 'Low', and 'Unit'. The 'Body' row shows values: High = 5, Low = MΩm, Unit = MΩm.

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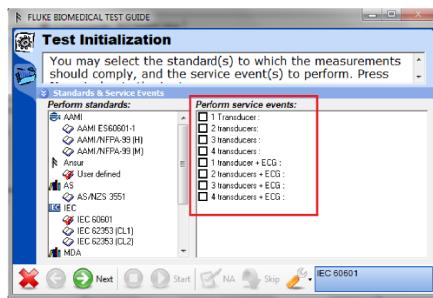
## Custom Setup: Power On Test



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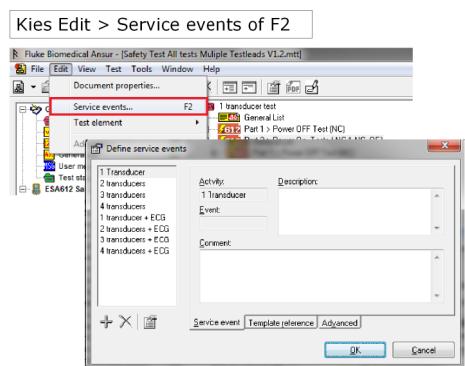
## Gebruik van Service Events:



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## Gebruik van Service Events:



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## Electrische veiligheids test in de praktijk:

Meest voorkomende defecten:

- Netsnoer
- Netfilter
- Beschadiging aan tranducers

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## Electrische veiligheids test in de praktijk:

Meting Earth resistance:

ESA-612 > 200mA AC

ESA-620 10-25A AC



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## Electrische veiligheids test in de praktijk

Veel voorkomende problemen met netsnoer



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## Electrische veiligheidstest in de praktijk

Netsnoeren van betere kwaliteit



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## Electrische veiligheids test in de praktijk

Defect netfilter: Oorzaak verhoogde lekstromen  
of lagere waarde insulation test



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## Electrische veiligheids test in de praktijk

Defecte transducer:



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## Electrische veiligheidstest in de praktijk

Defecte transducer



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## Electrische veiligheidstest in de praktijk

Slijtage aan de lens

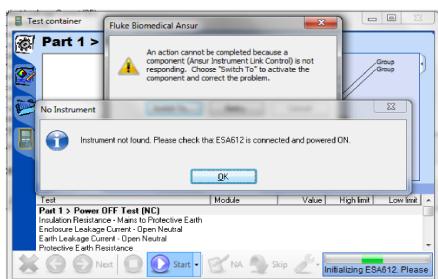


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Probleem met USB verbinding ESA-612 en PC

Error melding bij het opstarten van de test



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Probleem met USB verbinding ESA-612 en PC

Oorzaak: Handmatige meting voor automatische test

Oplossing: ESA-612 herstarten

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Probleem met USB verbinding ESA-612 en PC

Note

If the ESA612 is not connected to COM1 on the PC, Ansur displays an Instrument Not Found window where the port the ESA612 is connected to can be entered. The correct port number is displayed in the Windows Device Manager. Look for the USB Serial Port entry under "Ports."

Once the PC locates which port the ESA612 is connected to, Ansur remembers the port number and uses it as the default port for electrical safety tests.



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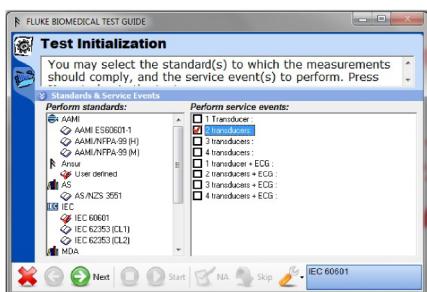
Meetopsteling 3 transducer test



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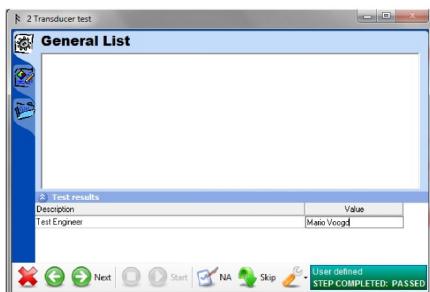
## Veiligheidstest 2 transducer Test initialization



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## Veiligheidstest 2 transducer General list



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## Veiligheidstest 2 transducer part 1 Activeer transducer 1



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## Veiligheidstest 2 transducers Activeer tranducer 2



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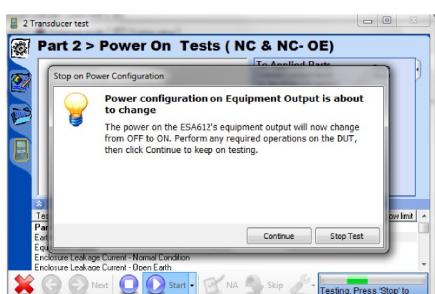
## Veiligheidstest 2 transducer part 2



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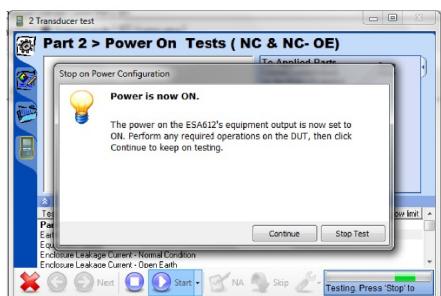
## Veiligheidstest 2 transducer



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## Veiligheidstest 2 tranducer



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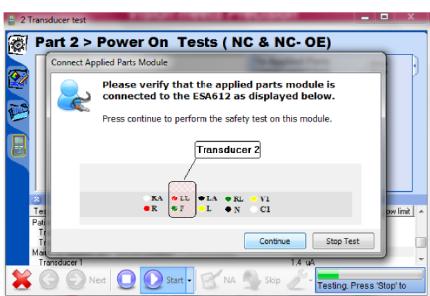
## Veiligheidstest 2 transducer Activeer transducer 1



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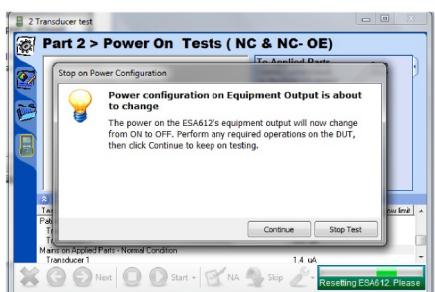
## Veiligheidstest 2 transducer Activeer transducer 2



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## Veiligheidstest 2 transducers



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## Veiligheidstest 2 transducers Part 3



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## Veiligheidstest 2 transducers



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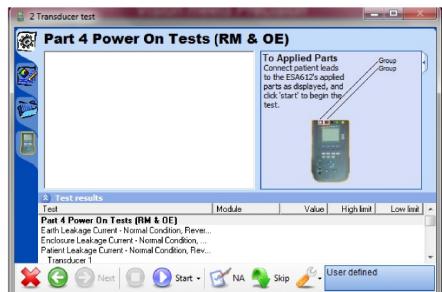
## Veiligheidstest 2 transducers



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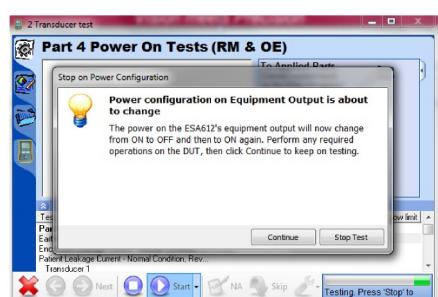
## Veiligheidstest 2 transducers Part 4



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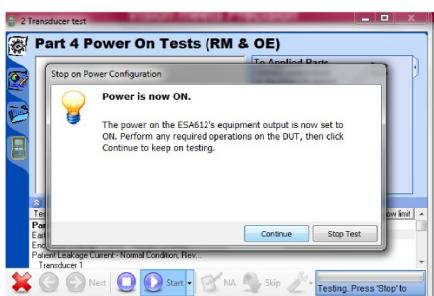
## Veiligheidstest 2 transducers



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## Veiligheidstest 2 transducers



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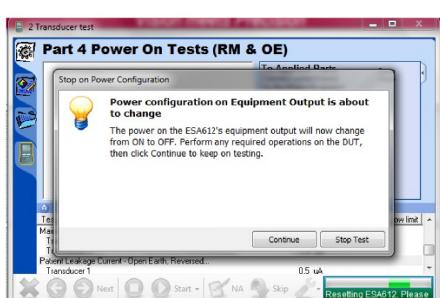
## Veiligheidstest tranducer 2



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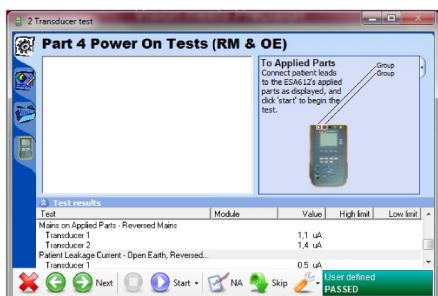
## Veiligheidstest 3 transducers



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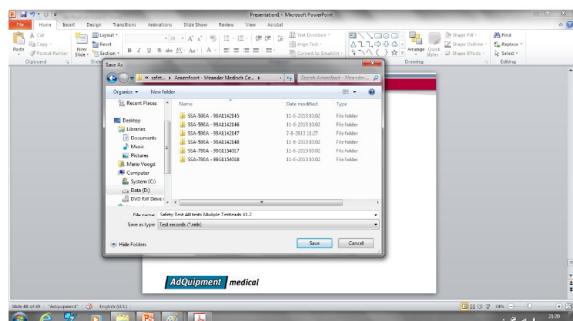
## Veiligheidstest 2 transducers



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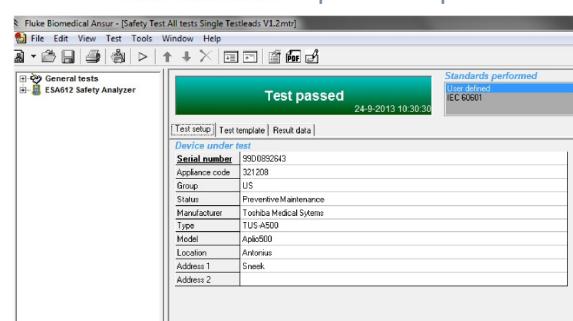
## Testresultaten opslaan \*.mtr



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## Testresultaten opslaan \*.pdf



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Veiligheidstest transducer zonder  
echotoestel



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Nog te doen!

ECG test (stand alone)

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Opmerkingen? Suggesties?

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Leading Innovation >>>

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Bedankt voor de aandacht!

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