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1. ESD Warning - Please note!

The life span of electronics can be affected by damage caused by electrostatic discharge. This can happen if a charged tool or person touches a component. Therefore it is very important that all tools and personnel are discharged by touching an earthed point before the printed circuit board or any of the components are touched.

A person walking on a carpet can be charged with up to fifteen thousand volt (15000V). Compare this with the fact that some sensitive components can be destroyed when discharged on a much lower level (about 100V). We kindly ask you to pay notice to this, as this is a vital point in order to ensure the life span of the product also an after repair. .

2. Tools

The need of tools depends on type of softstarter. The tools are listed in the instruction for how to change thyristors. Please look in the correct instruction for the softstarter type you have. To be able to follow this instruction, you will need a megger.

Megger possible to set on 500V

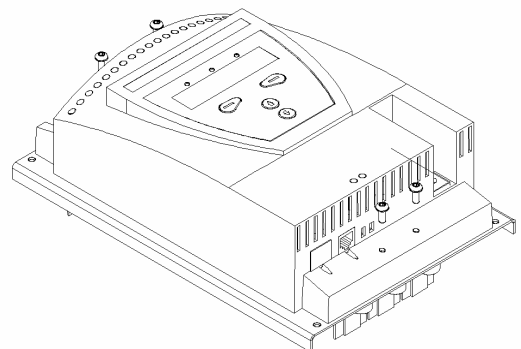
3. Testing the thyristors - Step by step

Before disconnecting the cables mark them.

Disconnect the power cables from the main terminals 1L1, 3L2, and 5L3 and the motor cables from terminals 2T1, 4T2 and 6T3

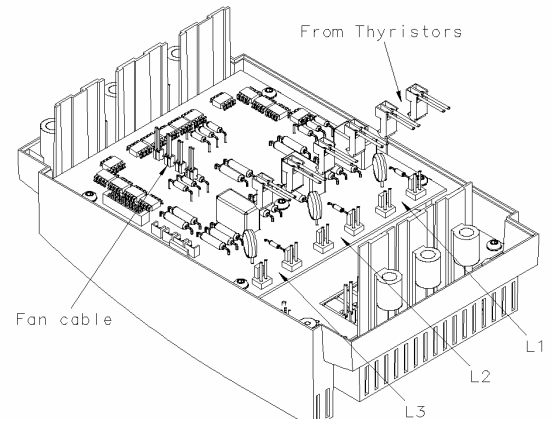
Disconnect all cables from the terminals 1 to 20, the external keypad, and the PTC sensor and if used, the Field bus plug.

Remove the plastic front cover (the example shows PST).

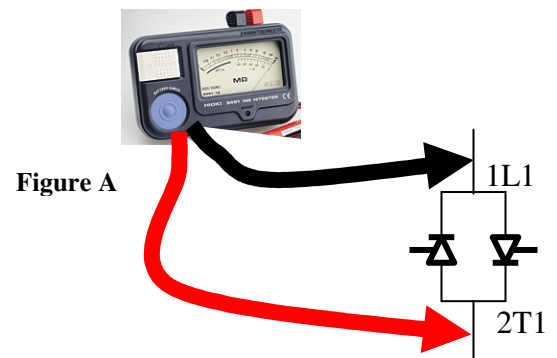


Discharge the tools and yourself by touching earth (if you are not earthed).

Mark the cables from the thyristors with L1, L2 and L3. Disconnect these six sets of cables from the HV-board.

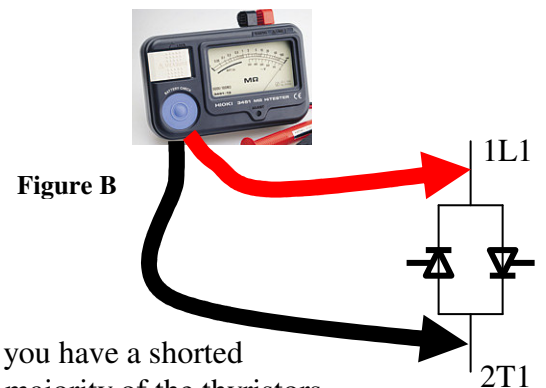


Set the megger on 500V. Connect the megger to the main terminals on the softstarter 1L1 and 2T1 according to figure A. Note the result.



Change the connection according to figure B, and repeat the measurement. Note the result

Repeat the tests in the two remaining phases between 3L2 - 4T2 and 5L3 - 6T3. When ready you will have six different values.



An analysis of the test result from all three phases will show if you have a shorted thyristor or not. Look for values, which are not in line with the majority of the thyristors, showing a lower value. A guide for a good thyristor is when the value is above 1Mohm. When identified as shorted it has to be replaced with a new one.

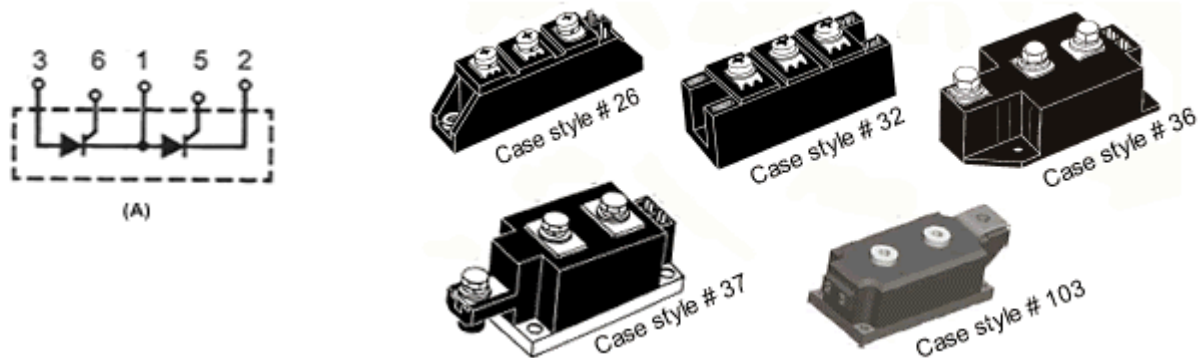
If you need to change thyristor or thyristor block, please look in the separate instructions for changing thyristors. There are different instructions depending on both type and size of softstarters.

When ready, please make sure that you reconnected the gate cables in the same position as before. Please also check that all other cables, for the temperature sensor, fans etc. are in position, properly connected (they may slide off during handling of the plastic top).

Mound the plastic top back in position and finally, reconnect all control cables and the main cables. Then you are **Ready for start!!**

4. . Some examples of thyristors and its marking

Below you find the typical types of thyristor blocks used in PSS and PST30...300. The manufacturing type can be both IXYS (black housing) and Semikron (white housing).



For larger types of softstarters type PSTB we are using thyristors of capsule types. See principal picture below. Depending on type and size, these can show different values when checking them up. Please not that this type of thyristors has to be correctly mounted when tested to get the correct result.

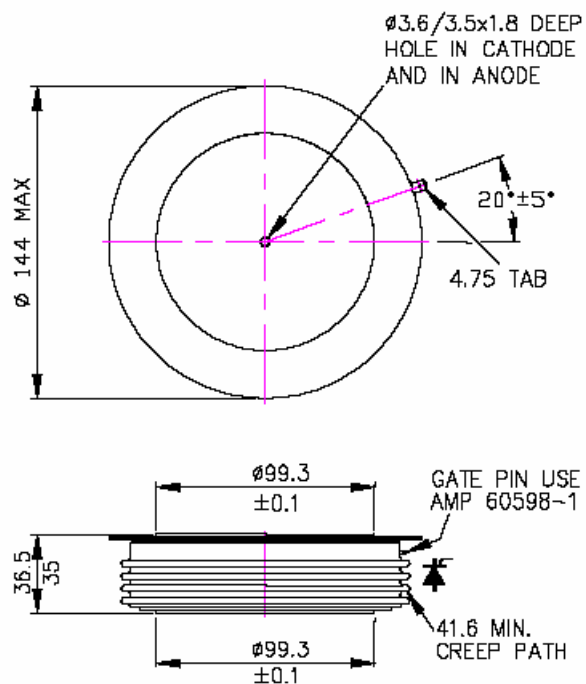


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