Ecosine® passive Harmonic Filter EVO
Failure Analysis
Failure Analysis

1. Intended use

### Dangerous voltage
Risk of death due to short circuits and electric shock if the active filter is opened improperly. The discharge time of the intermediate circuit after disconnecting from the mains can be more than 5 minutes. All interventions involving opening the device cover or removing or installing the connection cable may only be performed by qualified personnel.

### High-frequency interferences
In a residential environment, high-frequency interferences could occur, which necessitate interference suppression.

**Note**
Please note that there are additional manuals for some product variants. For the latest versions of these manuals go to [www.schaffner.com](http://www.schaffner.com).

2. Personnel qualification

Installation of the Ecosine® passive filter, inspections for proper operation, and certain troubleshooting measures may only be performed by qualified personnel. All other measures may be performed by people who have read these instructions.

**Attention!**

**Before starting to work on the device, ensure that it is disconnected from the grid and capacitors are discharged**

3. Tool list (minimum requirements)

- Camera
- Multimeter with ohm and capacitance test (for example Fluke)
- Socket wrench set 5.5 - 7 mm
- Screw driver PH1 and PH2
- Combination wrench 17mm
4. General condition

Take a picture of the label to get the device data.

- [ ] Label

Take a picture of the Front cover including near surroundings, check the basic condition outside.

- [ ] Front Cover
- [ ] Near surroundings
- [ ] Basic condition outside

Remove the front cover
Take a picture of the fan or fans

- Fan

Take a picture of the device without front cover, check the basic condition inside

- Without front cover
- Basic Condition

Remove the fan module
5. Application & Installation

Check and indicate how the device is connected. Specify the type & values of the load & external fuses or forward a schematic diagram.

Load:______________________________
Load Values:________________________
AC Line Choke:_______mH
DC Link Choke:_______mH

Check and indicate how the RWK is connected.
- U1,V1,W1 connected to PHF?
  Yes ☐ No ☐
- U2,V2,W2 connected to VSD?
  Yes ☐ No ☐
Specify the environmental conditions: Ambient temperature in °C & humidity. Also indicate device temperature during operation

Ambient temperature: _____ °C
Humidity: ______ %RH

Any other Schaffner filters are installed in same application:

Type & Qty: _______________________
No: ☐

Any other problems detected on these other filters, same/other problems happen in the past:
__________________________________

6. Measurements

In the case of an existing PQ meter, please perform a short term measurement about 10-15 Min. with logged values
- Voltage
- Current
- THDi
- Power
and provide the file with completed document to Schaffner
Note the name of used measurement equipment:
_________________________________________________________________
Specify the voltage value (True rms). Perform a voltage measurement on the filter input.

Enter the voltage values between:

L1 - L2: _______ Vac
L2 - L3: _______ Vac
L1 - L3: _______ Vac

Note the name of used measurement equipment:

___________________________________

In case of several capacitors per phase, measure the connection point from the trap choke to the star point (neutral point).

Enter the measurement result of the total capacity per phase.

1. _______ µF
2. _______ µF
3. _______ µF
In case of total capacity deviation per phase greater than 10% please perform single condenser measurement.
Remove all cables from the capacitors

Remove all cables from the capacitors

Check all capacitors with the capacitance meter.
Choose capacitance test and connect the RED + and the BLACK – probe to the capacitor.
Enter the measured value to the table below
Perform the resistance measurement of the temperature sensor.

Value _______ Ω
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