Ecosine® passive Harmonic Filter Gen1

Failure analysis

March 2018
Failure analysis

1. Intended use

DANGER

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.

WARNING

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.

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
- Long screwdriver with a slot
4. General condition

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

☐ Label

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

☐ Front Cover
☐ Near surrounding
☐ 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 cover
Take a picture of the device without fan cover, check the basic condition inside

- Without fan cover
- Basic Condition

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:

___________________________________

Disconnect the black cable bridge between the capacitors

Disconnect the cables on the other side of the capacitor plug
Disconnect the discharge resistors

Check all capacitors with the capacitance meter.
Choose capacitor test and connect the RED + and the BLACK – probe to the capacitor connector. Please do not measure phase to phase but moved by one.

Enter the measured value to the table below:

1. _______µF
2. _______µF
3. _______µF
4. _______µF
5. _______µF
6. _______µF
Check if thermal monitoring sensors of the trap & line chokes are connected with terminal 1 & 2 as requested.

Yes ☐  No ☐

Perform a resistance measurement with multimeter on terminal 3 to 4 and 5 to 6.

Terminal 3 to 4:_______ Ω
Terminal 5 to 6:_______ Ω
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