

## TECHNICAL **BULLETIN**

Bulletin Nr.

**165**  
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Subject

**Instructions to filter's replacement and settings**

Equipment

**Indium series device 4U**

Technician

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# Instructions to filter replacement and settings

## Subject description

This procedure describes the steps to follow to replace the the lowpass filter in Indium 4U series.



Subsequently, the calibration phase, if not done properly, it can compromise the functionality of the device.

For this reason **it should be done by experienced staff** and by not Elenos technicians only when absolutely necessary.

Please, before any intervention, **to view the contractual forms of the Manufacturer to understand for any lapse of the warranty period.**

## Time required

30 minutes.

## Tools and parts required

- Cross head screwdriver.
- Flathead screwdriver.
- Allen screwdriver.
- Welder.
- Filter to replace.
- Bolometer (for comparison with data read on transmitter).
- Directional coupler (calibrated).
- Load (with adequate power).
- Spectrum analyzer (to check oscillations).
- PC connection cable to apparatus (CAB0068).
- Station prepared with coaxial relay, notch kit, 10KW parallel loads.

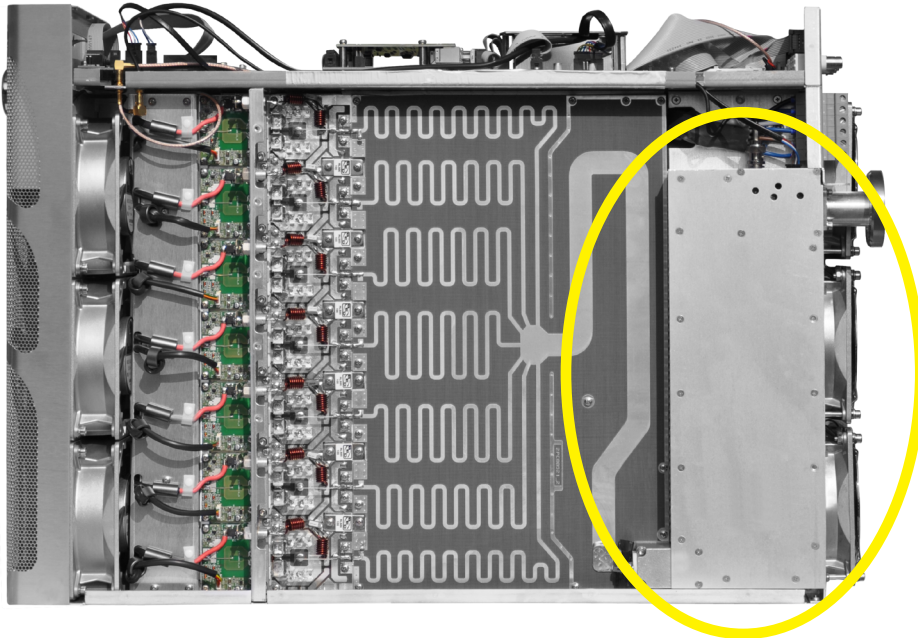
## Procedure

Before carrying out any operation disconnect the apparatus power supply.

### **Filter Replacement**

Remove the screws in order to open the bottom cover.

Locate the low-pass filter to replace.



The low-pass filter is attached to the side walls:

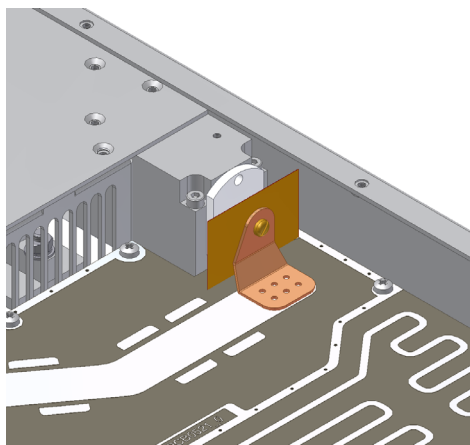
- with stainless steel screws M3x6 head cross and relative grover, by the side of the wall to support the electronics,
- with stainless steel screws M3x6 head cross from the other side of the wall.

The block's input low-pass filter is attached to the support surface of the combiner using two allen screws M3x35 and spring washer, and tighten it.

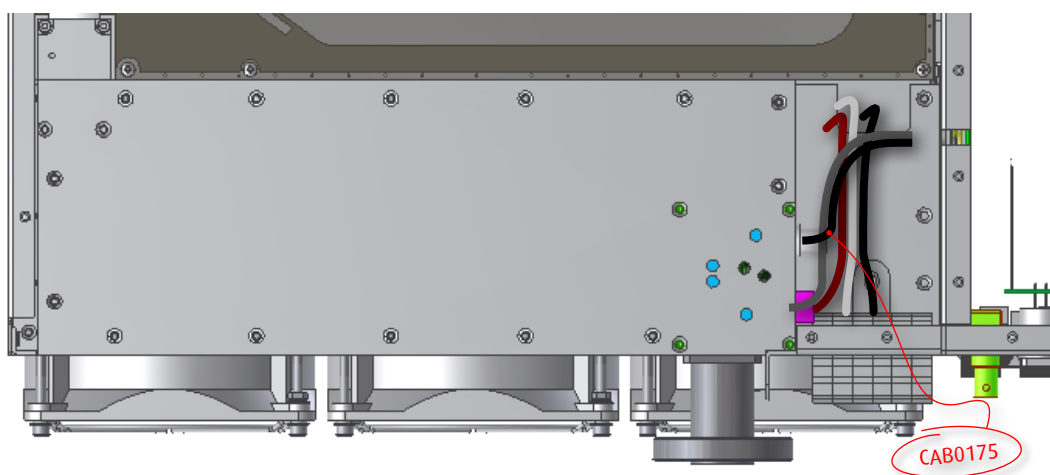
There may be a kapton insulator in inner block between the centering teflon and the copper strip.

The flap is fastened in the inner with a M3x6 brass screw, cylindrical cutting head, without washers, and is welded to the pad having added the pond through the holes until the total coverage. Even the screw and the inner stagnated.

Due to the power that has to pass through the strip and the inner, is absolutely necessary that the screw is tightened, that the conductive surfaces are in good contact between them and that the welds vested all the edges of the parts in contact.



On the filter is soldered CAB0175 cable.



Given this mounting configuration, before work backwards to remove the filter, and then replace the new filter (that the Manufacturer sends you already tuned), restore all connections, close the transmitter and reconnect the power .

**Filter calibration**

Make the appropriate connections between the apparatus and instrumentation.

**FORWARD POWER OUTPUT READING**

By connecting a PC, navigate in the "Password" menù (twice reached by typing the letter "K" on the keyboard) and enter the code 3000.

Navigate to the "DEBUG" menu (accessible by typing the letter "D" on the keyboard).

Move to the submenu "PSU DETAIL" (accessible by typing the letter "P" on the keyboard) and set the following parameters as required:

AUTOMATIC ADJ: FALSE

Put the machine "On air" @ 98MHz.

Set gradually BIAS SETTING to the maximum value by verifying that you have the current balance between the individual modules (the difference should not exceed 1.5A).

Adjust the power indicated (read on the bolometer) acting on R1.

Set AUTOMATIC ADJ: TRUE with a rated power output equal to the desired output (5000W, 3500W, 2500W) and verify the reading.

If you have a discrepancy of reading repeat the above steps to AUTOMATIC ADJ: FALSE, until you have the alignment.

Make sure that the machine has @87.5MHz power between:

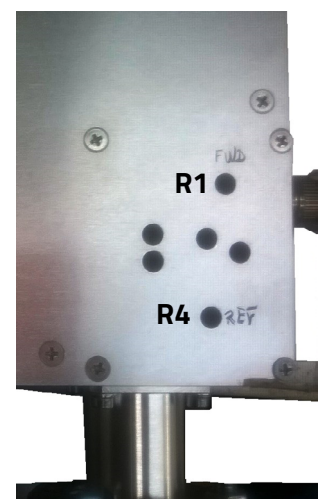
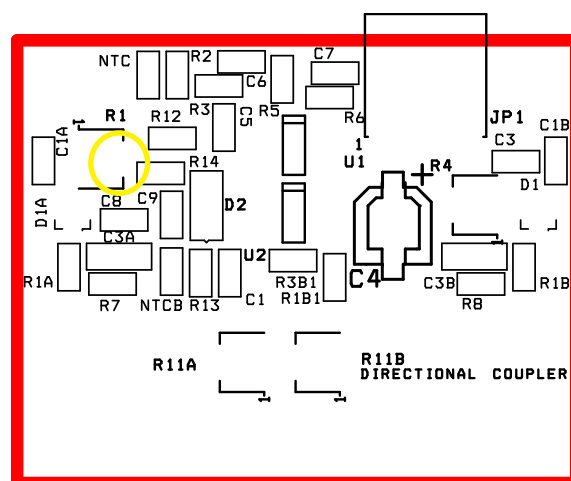
5000W-5050W for ETG5000

3500W-3550W for ETG3500

2500W-2550 for ETG2500

Otherwise act again on the trimmer R1 to bring the value in this range.

Check the flatness in band @ 108MHz (remember to change the offset on the bolometer, it is important to have an efficiency greater than 78% RF).



**REFLECTED POWER OUTPUT READING**

Turn the relay to be connected as output on the parallel of the two loads 10KW, such as to have 10dB return loss.

Disable the folback on ROS.

Display:

MENU SYSTEM

MENU SYSTEM CONFIG

SWR FOLDABACK PARAMETER

Hyperterminal:

MENU SYSTEM (Y)

MENU SYSTEM SETTINGS (X)

SWR FOLDBACK ENABLED PARAMETER

Put the machine On Air @ 98MHz with a target of 2500W (regardless of the power rating of the apparatus).

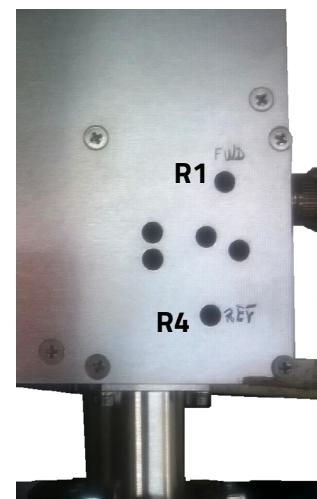
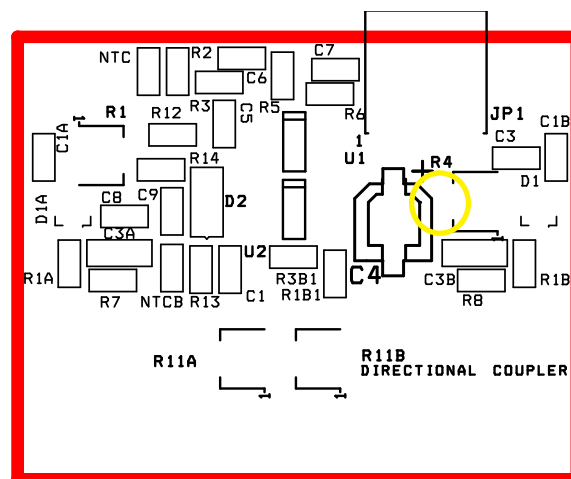
Adjust the trimmer R4 to read a reflected power of 250W (10% of the target set).

Make sure you have the same conditions @ 87.5MHz and @108MHz.

Verify that with a decrease of the power the reflected power remains always on a value equal to 10% of the target.

Turn off the device and restore the connection to the load.

Verify that you have now, at the nominal forward power and at the frequency 87.50MHz, 98.00MHz and 108MHz, 0W of reflected power.



**CHECK THE PROTECTION**

Leave the output connector open.

Set the power to a value that slightly exceeds the threshold beyond which the protection is active (10% of rated power) and put the machine "On air" testing the intervention of the protection.

Now set the power to a value slightly below and verify that the machine start again and the readings remain stable.

Restore the foldback on ROS.

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