PINK NOISE GENERATOR
MODEL 8280

OPERATOR'S MANUAL V 2.6

Technical data for Pink Noise Generator

Type:	NG 8280	
Input voltage:	17 VAC	For mains connection, use the submitted AC-adapter only
Input power:	7 VA	
Input fuse:	T400 mA, 250 V	
Output:	Sine wave 1 kHz;	Filtered pink noise
Output Voltage Low:	0 – 100 mV / 1 k ohm	0 – 35 mV rms / 1 k ohm
Medium:	0 – 1 V / 1 k ohm	0 – 350 mV rms / 1 k ohm
High:	0 – 5 V / 1 k ohm	0 – 1.7 V rms / 1 k ohm
Dimensions:	W = 290 mm; D = 270 mm; H = 75 mm	
Weight:	1.3 kg, AC-adapter included	
Operating temperature:	+15 - +35 °C	

Function

ON / OFF	On/Off switch
Sine 1 kHz / Pink Noise	Switch for sine wave or filtered pink noise
Level	Switch for 3 different output levels
Adjust	Adjustment of output voltage
Phase Shift 90° / 0°	One of the output shifted 90° compared with the other or the outputs are in phase
A Out, B Out	Output connectors, RCA socket and 4 mm banana socket
Cleaning	To clean the unit, wipe with a soft, dry cloth. For stubborn dirt wet a soft cloth with a mild detergent solution, wring well, and then wipe off the dirt. Also use a dry cloth to wipe the surface dry. Do not use volatile liquids such as benzene or thinner, which are harmful to the unit.
Service	There is no service adjustments inside the unit. In case of trouble, contact your re-seller
Manufactured by	FJ Elekronikmontage / Gigasense

This instruction may be revised without further notice

Connection diagram

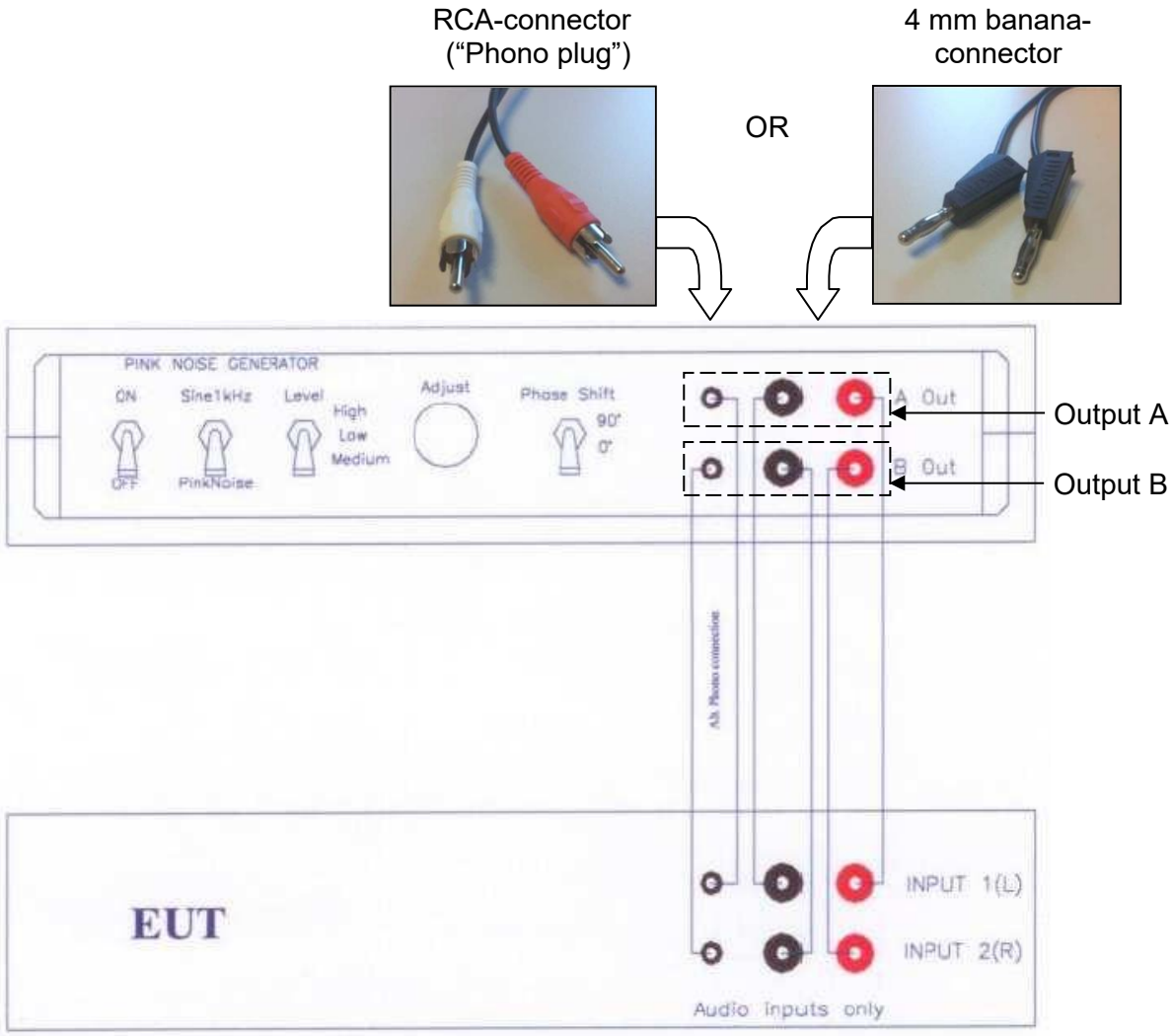


Fig. 1

Connect the EUT (Equipment Under Test) according to connection diagram (fig. 1)

Use cables with 4 mm banana plugs or RCA-connectors.

Connect the output of the PINK NOISE GENERATOR to the INPUT on the EUT.

NOTE: There are two separate outputs; A and B. Each output can be connected in two ways, either with one RCA connector or with one pair of 4 mm banana connectors.

CAUTION:
DO NOT CONNECT any cable from OUTPUT on the EUT to the PINK NOISE GENERATOR, otherwise the PINK NOISE GENERATOR will be damaged

Description of buttons and connectors:

ON / OFF: Switches the equipment on or off.

Sine 1 kHz / Pink Noise: Selection of the output signal. During test setup, a sine signal can be used for functional test. A clear beep-tone will be heard from the connected sound system.

Coarse: Selection of the output signal. (Low, Medium or High) During setup, *Low* should be selected to avoid overloading the EUT.

Fine: This knob is used to fine tune the voltage level of the output signal. (1-10) During setup, a low value should be selected to avoid overloading the EUT, however, if the value is too low, it might be difficult to detect the output signal.

Phase Shift: This switch is used to make a 90° phase shift of the output signal on Output B. This can be used when testing stereo system to create different signals on the two outputs A and B.

A Out / B Out: These are the two signal outputs for the EUT. Each output has two ways of connection, either one RCA-type connector of two 4 mm banana-type connectors. Note that the signal is the same on both outputs A and B, but B can be phase shifted 90°. The outputs shall be connected to the inputs of the EUT (Equipment Under Test). They must never be connected to an output, since this will destroy the Pink Noise Generator or EUT.

Using the Pink Noise Generator:

Set the *Coarse*-switch to Low, and turn the *Fine*-knob to 1.

Connect the Pink Noise Generator:s outputs *A Out* and *B OUT* to the inputs of the EUT (Equipment Under Test) Note: You don't need to use both outputs.

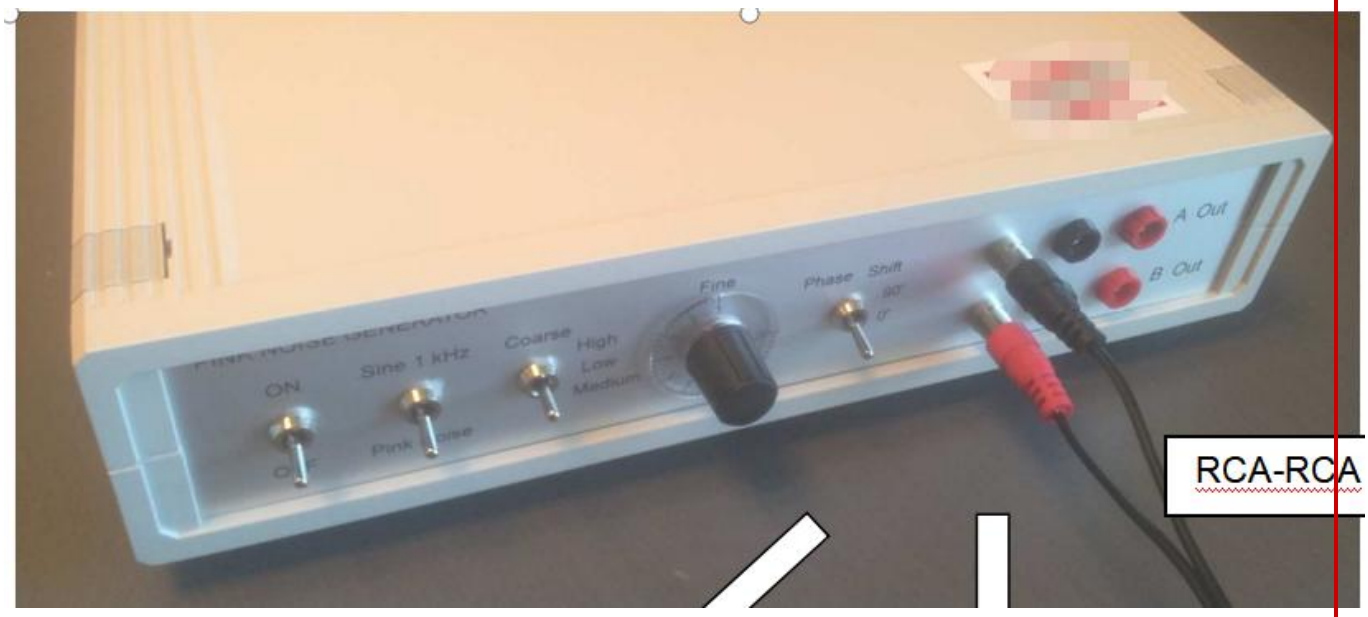
Set the output level (volume) of the EUT to a low level. Switch the EUT on and select the Line Input, AUX or whatever input you are using on the EUT.

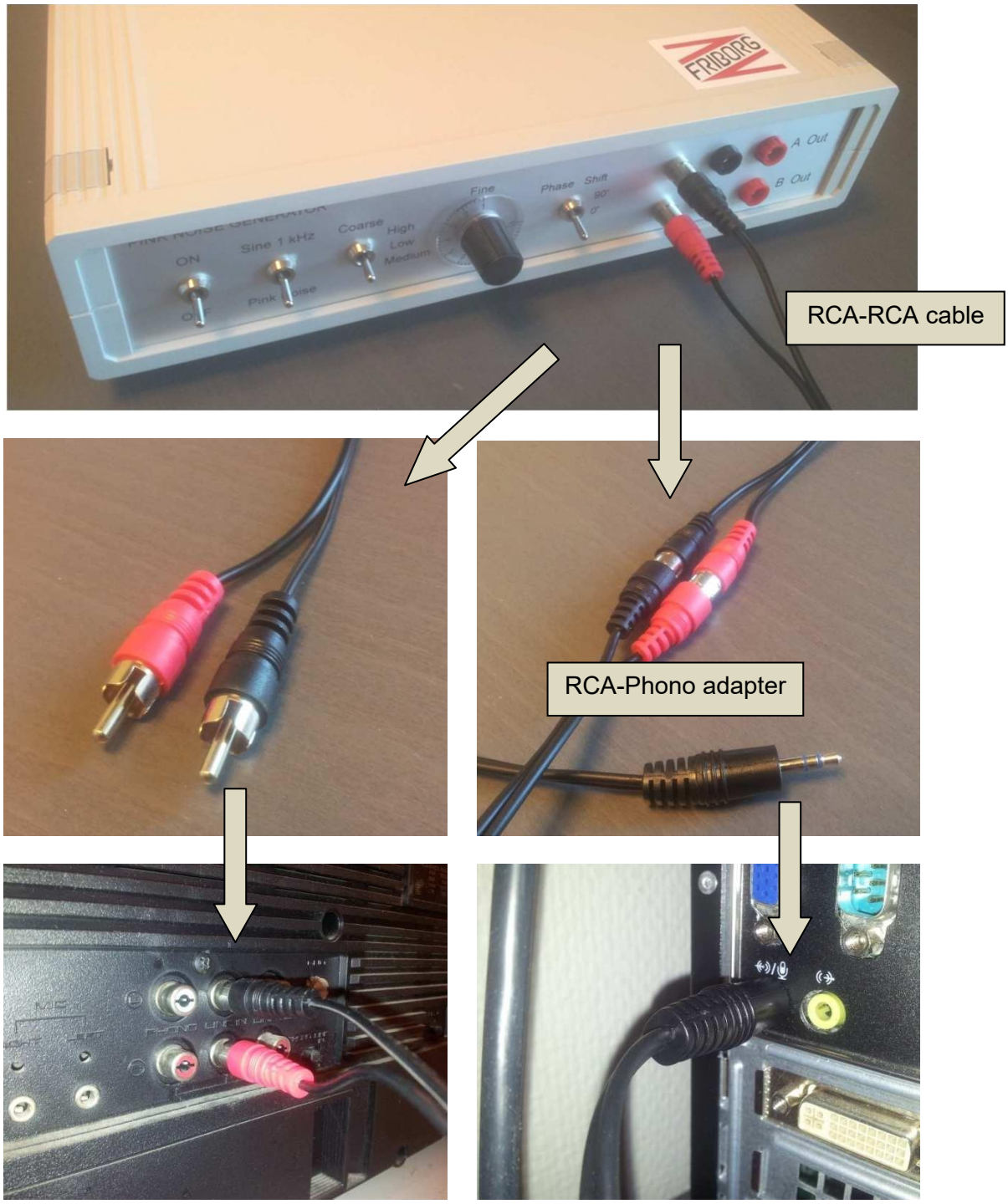
Switch on the Pink Noise Generator. Select *Sine 1 kHz.* Carefully turn the *Fine*-knob to a higher level until a clear beep-tone is heard from the EUT. Increase the volume on the EUT if required. If the signal is not high enough, turn the *Fine*-knob back to 1 and switch the *Coarse*-switch to Medium. Then again turn the *Fine*-knob to a higher level. Also try to increase the volume setting of the EUT, but be very careful and avoid extreme high settings, since this might damage the speakers.

When a beep tone is heard from the EUT, move the switch from *Sine 1 kHz* to *Pink Noise*. Now, a noise signal should be heard. The signal strength can be adjusted with the *Coarse*-switch and the *Fine*-knob.

The equipment is now ready for test according to procedure in relevant test standards.

Connection examples:


ON
Sine 1 kHz
Coarse
High
Low
Medium
Fine
Phase Shift
90°
0°
A Out
B Out
RCA-RCA



Connect the included RCA-RCA extension cable to the output of the Pink Noise generator.
The other end is connected to the “Line Input” or “AUX” of the EUT (Equipment Under Test)
Use the included RCA-Phono adapter if required.
Note that the Pink Noise Generator must be connected to an Input, not an Output.

Function check with oscilloscope:

An oscilloscope can be used to make a simple function check of the Pink Noise Generator.

The oscilloscope must be connected to one of the outputs of the Pink Noise Generator. One way is to connect 4 mm banana type connectors with a suitable adapter (not included) between the oscilloscope and Pink Noise Generator.

Also, an oscilloscope-probe with clips can be attached to the included RCA-RCA cable as illustrated in the picture. Note: Be very careful so that the connectors are not short circuited.

Set up the oscilloscope for measuring 1 kHz at a level of less than 0,5 Volt. Set the Pink Noise generator to *Sine 1 kHz*, Set *Coarse* to Low and turn the *Fine*-knob to 5.

A sine curve of 1 kHz should now appear on the oscilloscope. Check that the amplitude (height) of the curve is changed when the *Fine*-knob is adjusted.

Now, flip the switch from *Sine 1 kHz* to *Pink Noise*. The curve on the oscilloscope should now be random. Again, check that the amplitude is changed when the *Fine*-knob is adjusted.

Calibration of Pink Noise flat frequency response

The new instrument has a digital pink noise generator with a reduced amount of influence on the pass through curve. The demand in the standard is that this influence must not be larger than ±0,5 dB in the frequency span from 22,4 Hz to 22,4 kHz.

As shown in the calibration curve the pink noise curve is falling off with increasing frequency at 3 dB/octave in the span from 22,4 Hz to 22,4 kHz and the readings are well within the requirements of the standard IEC 60065.
This will give you the best possible opportunity of producing a flat frequency output spectrum.

The calibration of the unit is done with an advanced signal analyzer, but you can simply check your unit using a voltmeter and a variable band-pass filter.

Calibration procedure:

Connect the output “A” of the Pink Noise Generator to the input of the band-pass filter and connect the voltmeter to the filter output. Set the filter cut-off frequency at 1 kHz high pass and 2 kHz low pass.

Set the generator switch in position “Medium” and adjust the output reading to -20 dB V (100 mV RMS) with the “Fine” knob.

Now, when you change the band-pass to the next octave 2 kHz-4 kHz (double frequency) the reading should be yet again -20 dB V ± 0,5 dB V which indicates a flat frequency response.

You can check the entire frequency span with this method using several octave band-passes.

For example:

Cut-off frequency high-pass	Cut-off frequency low-pass	Output reading (for flat response)	Actual reading Output A	Output B
62,5 Hz	125 Hz	-20 dB V ± 0,5 dB V	P	
125 Hz	250 Hz	-20 dB V ± 0,5 dB V	P	
250 Hz	500 Hz	-20 dB V ± 0,5 dB V	P	
500 Hz	1 kHz	-20 dB V ± 0,5 dB V	P	
1 kHz	2 kHz	-20 dB V ± 0,5 dB V	P	
2 kHz	4 kHz	-20 dB V ± 0,5 dB V	P	
4 kHz	8 kHz	-20 dB V ± 0,5 dB V	P	
8 kHZ	16 kHz	-20 dB V ± 0,5 dB V	P	

You can also check the decreasing outside this frequency band at the rates specified for octave-band filters having mid-band frequencies of 31,5 Hz and 16 000 Hz specified in the IEC 61260.

Typically you will get a -12 dB V lower reading (-32 dB V) with a band-pass filter at 32 kHz-64 kHz and with a band-pass at 50 kHz-100 kHz the output reading will be -42 dB V.

Use an oscilloscope or a frequency counter for checking the sinus output. The reading should be 1 000 Hz ± 1 Hz.