

## QRM Eliminator X-Phase

### Description:

Problems with local QRM on HF? Often the answer is "yes". No matter if it's the elevator controller or an arcover on the high voltage line next to the garden. Most trouble comes from the local electronics, computers, television, power supplies or else. With this amazing accessory local QRM can be phased out, even when it's up to S9. No need to know where the noise comes from, could be the own packet radio machine or a welding machine some 100m away from you. The QRM-Eliminator is inserted in your antenna line, no need to modify your radio. It has a PTT-connection on the back, so it can be in line while transmitting. A second auxiliary antenna must be connected, ideal would be a small antenna close to the source of the noise, for example a small loop close to the elevator control, or some meters of wire somewhere in the shack or near the main antenna. Keep the antenna short enough, otherwise it will pick up your wanted signal in shortwave as well as the noise. The unwanted signal is picked up by both antennas with a different phase and both signals can be added and phased out, a clear frequency is left for your receiver Not comparable with a noise blanker.

**Frequency range: 1.8 MHz - 30 MHz**

**Size: 100x100x45mm**

**Connections: 3xBNC for main antenna, auxiliary antenna and TRX.**

**RCA-jack for PTT**

**5.5\*2.1 mm for Power supply**

**Supply needed: 13.8V/150mA.**

### Connections:

- Transmit antenna to "MAIN"
- Transceiver to "TRX"
- auxiliary antenna to "AUX"

Nearly every antenna is useable, local QRM can be picked up with a bad antenna. You can use another HF antenna or even the 2m antenna with only the center pin connected or some meter of wire behind the shelf in the shack. Best results can be achieved when the noise signal is same level on both antennas when GAIN1-knob is turned fully counterclock-wise, if not, try to change / move the second antenna. For testing the Signal just connect every antenna directly to the radio, then insert the QRM-Eliminator.

- supply Voltage 13.8V / 150 mA to the "12VDC" jack, center is plus.
- when transmitting through the QRM-Eliminator connect the PTT-Line from the back of your radio where normally your PA is connected. PTT is active when center pin is grounded. Do not connect to the PTT-key on your microphone! Max. power rating is 100W. If you want to use a PA, the QRM-Eliminator is to be connected between PA and exciter.

When turned off, the main antenna is directly connected to your radio, you can transmit through the unit.

### Usage:

Turn on the unit, adjust GAIN1 to have the noise signal with same level on both antennas, then adjust with the PHASE and GAIN2 knobs the noise, both alternatively, to a minimum of noise. Then adjust the GAIN1 knob for less noise. If not possible, readjust the PHASE and GAIN2 knobs again until the minimum can be found. A bit difficult at first try, don't give up to early!

When found a minimum the local noise has to be nearly or totally gone and the wanted signal will be left over. If this signal is gone as well => the aux. antenna picks up to much of the wanted signal AND of the noise, change /modify the antenna. As all 3 knobs interact with each other, the adjustment can be a bit tricky.

When you believe, the unit does not work.... use your antenna analyzer as signal generator, put it somewhere in the shack. Connect both antenna jacks with a little banana lead and check for a S9 signal from your analyzer. Then with GAIN fully counterclock-wise, the signal must be phased out after adjusting the PHASE and GAIN2 knobs.