ELAD DUOART60 Tune-up Procedure

To ensure maximum efficiency and RF output power is important to have a good match from power amplifier and antenna, the DUOART is made to match nominally resistive 50 Ohm impedance.

DUOART60 can have the automatic antenna tuner unit (ATU) installed that can handles load mismatches. The ATU is an hardware option.
When no ATU installed there is no tune-up procedure because the DUOART is factory aligned for 50Ohm Load, and allow to operate with VSWR < 2 at maximum power. The DUOART safety conditions correspond to have maximum 6W of reflected power otherwise Control Unit switch DUOART in STBY mode automatically (no Gain).

When the ATU is installed, before operating in transmission it is recommended to make the tune procedure for all antennas, bands, sub-bands so tuning data are stored in memory bank. When the tune procedure is done data of ATU Setting are automatically recalled based on operation Antenna selected and operating frequency. The DUOART can save and manage up to 20 different Memory Banks.

Split Band into sub-band

Band (m)	160	80	60	40	30	20	17	15	12	10	6
Band (MHz)	1.9	3.6	5.3	7.1	10.1	14.2	18.1	21.2	24.9	28.8	52.0
Sub-band Segment (KHz)	2	4	5	5	10	10	20	20	25	25	50

DUOART Setup with FDM-DUO Transceiver:
When DUOART60 is connected to the FDM-Duo transceiver (RTX, PTT in , ExtI/O , and DC power cable) it is recommended to make this settings:

DUOART60 Interface Mode: FDMDUO
FDM-Duo Menu 49 Tune time 60 sec
FDM-Duo Menu 55 Tune PWR 4 W
FDM-Duo Menu 56 Tune PTT NO

These setting allow to make tuning without powering the PA so can safely set the ATU with low power.

Pressing TUNE from Duo key or from DUOART Menu, will start the tuning procedure and at the will save data of the optimal matching in the selected bank. It also possible to adjust manually L and C value to do better match and save data.

DUOART setup with a Generic Transceiver:
It‘s also possible to use DUOART amplifier with a generic transceiver, in this case the frequency counter detect the operating band and sub-band. To make the right tuning with ATU begin to set an output power of transceiver at about 1W (0dB input ATTenuator of DUOART) then set the transceiver to transmit a continuous tone (CW or FM) then close PTT and press TUNE button, at the end of the Autotune procedure and data will be stored in the BANK selected.

It is possible to make the tuning procedure also while transmitting (operation not recommended) in this case is important to set CW or FM modulation and drive the PA with power less than 1W with 0dB Input attenuator or add attenuation in DUOART to avoid damaging in power amplifier.

Is also possible to bypass the internal DUOART ATU tuner and use an external tuner but is mandatory to exclude the internal one, **never use the internal tuner with an external tuner** this can cause damaging in DUOART60.