

## **KL7405V (or KL7405) and KL7505V (or KL7505) OPERATING DESCRIPTION**

KL7405V (with option without fan KL7405) and KL7505V (with option without fan KL7505) are a HF power amplifiers to be use in radio amateur services.

These type of amplifiers can works in two way:

- **RX mode**, when the input RF signal pass-through the amplifier without any amplification of wanted signal. This happen when the signal input on J5 (RF input connector) is lower than 0,5W or RF signal is outside the frequency range. In this case the inside microcontroller recognize that aren't the conditions to switch on the power amplifier section and doesn't switch the internal relays. This means that the J5 connector is directly coupled with J4 (RF output antenna).
- **TX mode**, when the input RF signal is amplified by inside power amplifier circuits. This happen when the signal input on J5 (RF input connector) is higher than 0,5W and frequency of signal input is inside the range 28 and 30 MHz. In this case, microcontroller recognize that power amplifier can be activated and switch ON the inside relays. In this mode, RF input signal pass through the RF attenuation stage and after on power amplifier section. Down this stage there is a Low pass filter (cutter at 33MHz) to reduce the emission of harmonics and spurious of unwanted signal.

Controls of RF level input and RF frequency input it's done by the PCB placed on frontal side of device. This control board that is connected on the mains power board by flat cable, check the characteristic of RF signal input on J5 connector and switch on the power amplifier module. Always this control board read the level of RF signal input and set the input power attenuator to avoid to break the power amplifier section.

At the last, are available also these protections:

- over-current of mains power supply done by 20 Amps fuse for KL7405V (or KL7405) and 30Amp fuse for KL7405V (or KL7405) placed on rear panel near the input power connector;
- Reverse power connection, done by a couples of diodes that in case of reversed polarity of main power input broke the 20 Amps fuse for KL7405V (or KL7405) and 30Amp fuse for KL7405V (or KL7405);
- Over-temperature protection done by NTC control that if temperature increase over the threshold, close the functionally of power amplifier section until the new restart by mains switch.