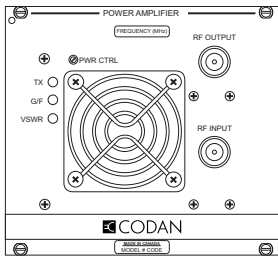


TN441 AMP-4 VHF and UHF 30 Watt Power Amplifiers


The AMP-4 30 Watt power amplifier operates in one of three frequency bands: 136 to 174 MHz, 380 to 430 MHz or 450 to 520 MHz. The power amplifier is rated for continuous duty at an adjustable RF output power of 20 to 30 Watts. The output power is adjusted either using the front panel potentiometer (local mode) or by a voltage via the rear panel connector (remote mode). The local and remote mode output power control is determined by a hardware jumper on the inside of the power amplifier. The AMP-4 was designed to mate with any of the MT-3 / MT-4 transmitter exciter modules.. The input to the power amplifier cannot exceed 8.0 Watts.

Specifications

Frequency Band	136 - 174 MHz / 380 - 430 MHz / 450 - 520 MHz
RF Output Power	20 to 30 Watts adjustable
RF Input Power Range (from exciter)	6.4 to 8.0 Watts (VHF) / 6.0 to 8.0 Watts (UHF)
Duty Cycle	100% (-30°C to +60°C)
Undesired Emissions: Conducted Spurious (Includes Harmonics)	≤ -70 dBc
Undesired Emissions: Radiated Spurious	≤ -13 dBm (≤ 57.8 dBc)
Intermodulation Attenuation	≥ 40 dB
Thermal	Thermal interlock disables @ +80°C (± 5°C) / +176°F Resets at +70°C (± 7°C) / +158°F
Fan	Fan activates @ +60°C (± 5°C) / +140°F Resets @ +40°C / +104°F
VSWR Protection	≤ 20:1 VSWR (All Phase Angles)
Operating Temperature	-30°C to +60°C
Output Impedance	50 Ω
Standby Current Drain	≤ 5 mA
Transmit Current Drain	≤ 7.00 A

Models Available

AMP-4-150-30-00	FM, 20 - 30 Watts continuous duty, 136 - 174 MHz
AMP-4-410-30-00	FM, 20 - 30 Watts continuous duty, 380 - 430 MHz
AMP-4-470-30-00	FM, 20 - 30 Watts continuous duty, 450 - 520 MHz

Guide Rails in Subrack for Power Amplifier:

The AMP-4 is installed in the subrack (taking up a transmitter and receiver slot) and is mated with a transmitter exciter. Additional guide rails are required to be mounted in the subrack to support the AMP-4 properly. The amplifier can be mounted in slot "A" or slot "B" in the subrack. A guide strip at the top of the subrack will help to place the guide rails in the proper position by following the numbers on the guide strip. Only the top portion of the subrack is labeled. Guide rails must be added or removed in the same position on the bottom as on the top.

Remove any guide rails that were used to hold the AMP-2 amplifier. These guide rails will be located at number 20/21 for slot "A" and number 48/49 for slot "B". Install guide rails at number 11/12 and 34/35 for slot "A" and number 39/40 and 62/63 for slot "B".

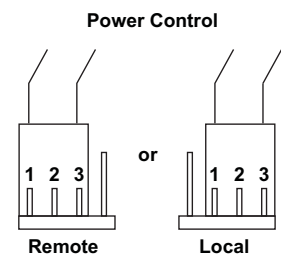
TN441 AMP-4 VHF and UHF 30 Watt Power Amplifiers
Power Amplifier Alignment:

Before aligning the 30 Watt Power Amplifier, the Transmitter Exciter should be tuned properly following the alignment procedures in the Technical Notes or Instruction Manual for the transmitter. **Disable the output power alarm, VSWR alarm, and VSWR overload** by turning the adjustment pots fully counter clockwise (if applicable, depending on use and model). Set the RF output power at **6.4 Watts**. **Do not exceed 8.0 Watts** at any time into the power amplifier.

Connect the transmitter exciter RF output to the power amplifier input using the 37 cm cable supplied with the power amplifier. Connect the Wattmeter to the power amplifier output and key the exciter by flipping the switch on the front panel to KEY TX.

If jumper J1 on the amplifier is set for Local Mode (default), adjust the front panel PWR CTRL (Power Control) pot to obtain the desired RF output power on the wattmeter.

If jumper J1 is set for Remote Mode, set the voltage on Pin Z22, on the rear connector of the power amplifier, to obtain the desired RF output power on the wattmeter. Pin Z22 can be accessed on an auxiliary panel on the back of the subrack. The Remote Power Control Voltage range is 0 to 9.5 Vdc.


Power Amplifier LEDs and Alarms:

The AMP-4 has a heavy duty and a thermally switched cooling fan. The power amplifier has three LEDs on the front panel and three open connector alarm outputs at the rear connector.

The green TX LED illuminates when the power amplifier is transmitting greater than 20 Watts. When the output power is less than 20 Watts, the “Low TX Output” open collector alarm on Pin B26 will activate.

The red G/F (General Fault) LED is a combination of two alarms: the heatsink temperature and the supply voltage.

The G/F LED will illuminate in standby mode when the heatsink temperature exceeds 80°C (176°F) and will reset when the temperature falls below 70°C (158°F).

The G/F LED will illuminate in active mode (transmit) when the supply voltage exceeds +17.8 Vdc and will reset when the supply voltage is reduced to +17.3 Vdc.

When the G/F LED illuminates, the “General Fault” open collector alarm on Pin B24 will activate, and the power amplifier turns off the voltage regulator to the RF and main control circuits to enter a low power mode

The red VSWR LED illuminates when the power amplifier has a VSWR of 2.1:1 to 4.0:1. When the VSWR LED illuminates, the “VSWR” open collector alarm on Pin Z26 will activate.

Note: For complete alignment procedures, refer to the instruction manual. These notes are for reference only.