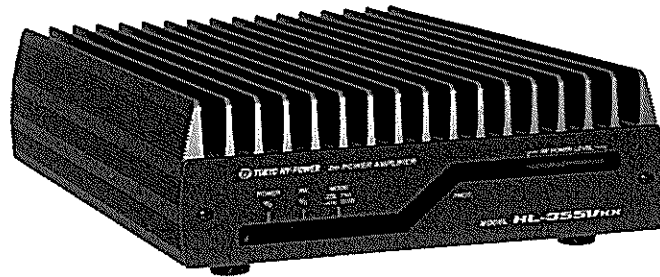


User's Manual

144MHz Band
300W Power Amplifier

Model HL-355VKX



TOKYO HY-POWER LABS., INC.

The HL-355VKX is a 144MHz Band Linear Power Amplifier with the maximum output power of 300W (320W max.), designed with Tokyo Hy-Power's accumulated VHF technologies.

Four pcs. of high gain RF FETs, RD70HVF1, by Mitsubishi Electric are used at final stage in the parallel push-pull amp. form. Due to its high gain HL-355VKX accepts wide range of drive power from 1W to 50W, achieving 25W to 320W of output power.

This is a completely solid-state amplifier capable of handling all transmission modes. There is a built-in super low noise GaAs FET RX pre-amp that helps operator receive weak DX signals.

1. Main Features

1. Latest LDMOS FET:

2. Adoption of Multi-Protections:

It incorporates four kinds of protection circuits developed by our own advanced technologies. This sophisticated protection gives you a warning (shut-down) before getting into any trouble.

3. LED Output Level Meter:

LED bar graph on the front panel indicates an approximate output power to monitor transmission status.

4. Low-Noise RX Pre-Amp:

It incorporates a low-noise RX pre-amp utilizing a performance-proven GaAs FET.

More cozy VHF communication can be enjoyed with the HL-355VKX.

5. Auxiliary Remote Controlling Function:

A jack for the connection with a remote controller (optional HRC-60) is provided on the rear panel.

Remote controlling of the power supply, the RX pre-amp and so forth can be controlled in the remote location.

6. Large Aluminum Heat Sink

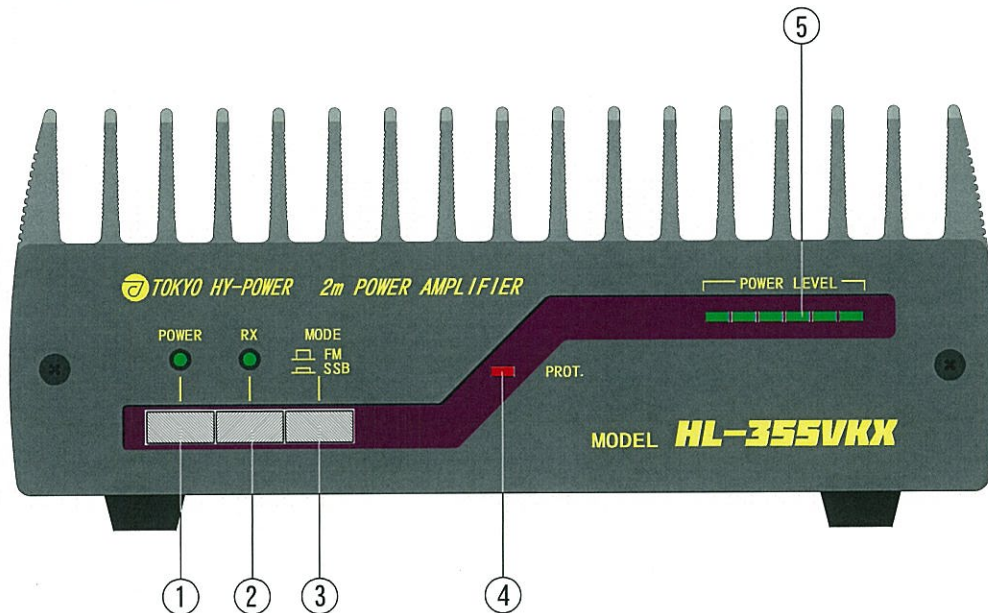
Large heat sink of our original extrusion design effectively radiates the heat generated at the final FET transistors.

2. Specifications

Frequency Band :	144MHz Band (available for 144-148 MHz)
Mode:	FM, SSB and CW
RF Output Power:	300W nominal (320W max.) (25~320W)
RF Input Power:	35~40 W typical (1~50W)
DC Power Supply:	13.8 VDC
Power Consumption:	40A max. (at 250W output)
Input/Output Impedance:	50Ω
Input/Output Connectors:	N-type
Spurious Signal Level:	-60dB or less
RX Pre-Amp Gain:	+17dB
Accessories:	<ul style="list-style-type: none"> ① RF Output Meter/ LED ② Low-Noise GaAs FET RX Pre-Amp ③ Warning Protection Circuit (protections for over-voltage, ANT mis-match, and over-temperature.) ④ Reverse DC Power Polarity Protection
Fuses:	25A x4, 1A x1 (Glass)
Attachments:	<ul style="list-style-type: none"> ① Power Supply Cable 8sqmm, 1m long: red x2, black x2 ② ACC 8-Pin DIN Plug x1, RCA phono plug x1 ③ Jumper Cable with N-M connectors: 69cm long x1 ④ Spare Fuses: 25A x4, 1A x1
Dimensions & Weight	8.7(W) x 3.4(H) x 14.0(D) inches, Approx. 12.3 lbs. 220(W) x 86(H) x 356(D) mm, Approx. 5.4kg

3. Explanation of Front and Rear Panels

<FRONT PANEL>



1 POWER (MAIN DC POWER SUPPLY SWITCH):

A power switch for the TX amp unit. With the first push, the switch will be locked, turning the power ON. And POWER LED lamp lights. With the second push, the knob will be released to turn the power OFF.

2 RX AMP

Power switch for RX preamp.

RX amp works independently regardless of ON/OFF positions of 1 POWER switch.

3 MODE (FM/SSB select)

Switch for selecting time lag of RF key circuit, when changing from TX to RX (stand-by).

When pressed for SSB/(CW), time delay is one second, and when released for FM/(AM), there is no delay.

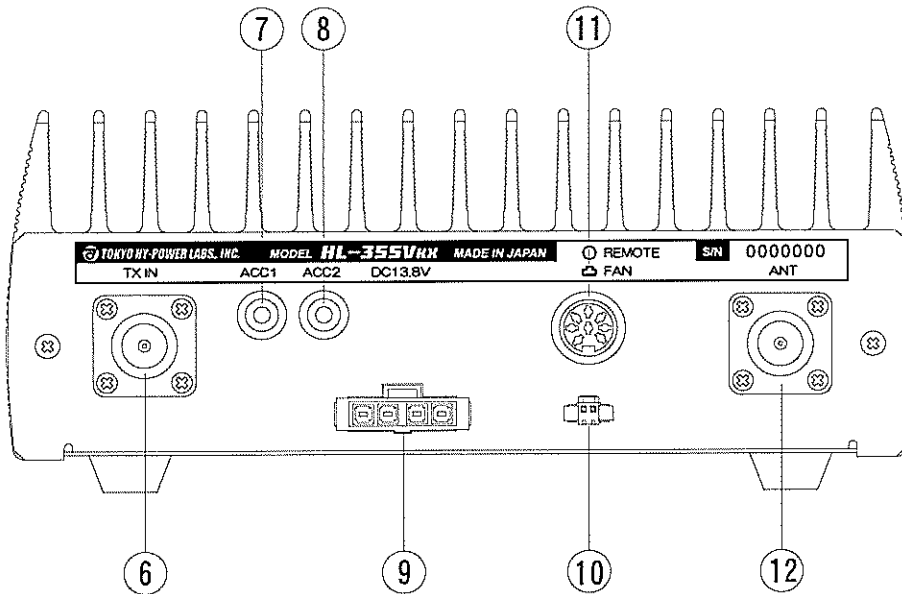
4 PROT (Protection LED)

Protection circuit will trip for high antenna SWR (when reflected power is 30 W or higher).

5 POWER LEVEL

Six LED lamps indicate approximate TX power level of amp. If all six is lit, output power is approximately 250 W.

<REAR PANEL>



6 TX IN (N, Input Connector)

Connect the coaxial cable from the transceiver.

Any kind of radios such as handheld, mobile, and base station use can be combined.

7 ACC1 (Accessory 1 RCA Jack)

Hard-key connection socket when TX to RX change over is made without time delay. (Desirable for SSB/(CW))

If DC voltage of +3V~+15V is applied to center pin, TX amp will be switched to TX ON state. (Refer to manual of your radio for positive DC voltage pin assignment.)

8 ACC2 (Accessory 2 RCA Jack)

Hard-key connection socket to use in the same manner as ACC1 7. If center pin is grounded through control circuit of your radio, TX amp will be switched ON without delay. (Refer to radio 's manual.)

9 DC13.8 V (DC Power Connector)

Connect to regulated DC power supply or 12 V battery system using included DC power cord.

(Red is positive and black is negative. Use 40 A minimum capacity.)

10 FAN/Jack

To connect DC power cable for an optional External Cooling Fan, HBK-300F.).

11 ACC/8 Pin DIN Jack

To connect an optional remote controller HRC-60 that enables the user to operate the power amp in a remote location.

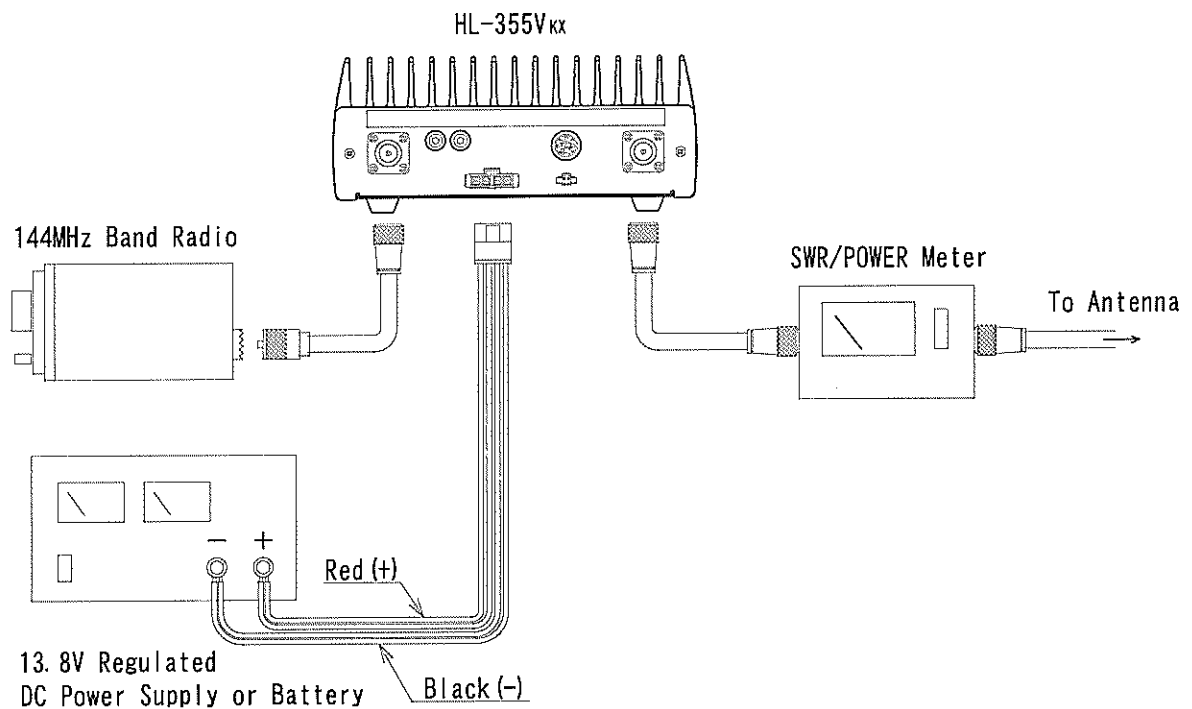
Detailed explanation on this jack and controller will appear later.

12 ANT

Connector (N) to connect coaxial cable from the antenna.

Connect an antenna with low SWR and sufficient power handling capability.

4. BASIC CONNECTION and SETTING

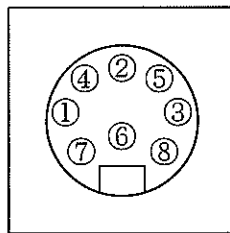


This figure shows the basic connection when RF-key is chosen. When hard-key is preferred, control cable from the proper accessory pin of the radios should be plugged to either ACC1 or ACC2.

(See previous page for the REAR PANEL explanation.)

Explanation of ACC/8 Pin JACK for Remote Controller

Viewed
from the outside
of the rear panel→



The DIN jack accepts the connection of optional remote head (HRC-60) that enables the various operations in the remote location.

Terminal No.	Noun	Connection Details
①	RX SW	Connected to RX pre-amp switch. When 13.8VDC is applied, the RX pre-amp is turned ON.
②*	VCC	Connected to positive line of DC power cords. 13.8V (1A max) is available at all times.
③	NC	No connection.
④	PROT	When PROT LED lighted, DC voltage for LED appears.
⑤**	ON AIR	When at TX state, DC 13.8V appears. (0.3A max)
⑥	GND	Grounded.
⑦	POWER SW	Connected to POWER SWITCH. When 13.8VDC is applied, POWER amp is turned ON.
⑧	NC	No connection.

*, **: No protective fuses included. Never short the circuits.

5. Various Protections

When the following Protection trips, "PROT" LED will light and amp will be shut down.

- 1 Over Temperature (LED lights solidly)
When the internal temperature reaches 70deg. C or above, "PROT" LED will light. (Leave the amplifier in STAND BY mode until temperature descends well.)
- 2 Over Voltage (LED blinks in series two times)
When DC line voltage exceeds 16V, "PROT" will light, and LED blinks. (Check the DC power supply. If the RF stray is the suspect cause of failure, use some clip-on ferrite cores at both ends of DC power cables.)
- 3 High Antenna SWR (LED blinks)
When the reflected power from antenna exceeds 30W, "PROT" will light, and LED blinks. (Check the antenna SWR.)

* When the "PROT" above trips, turn off POWER switch once and check the suspect cause of failure. Turn POWER switch on to reset the amplifier.

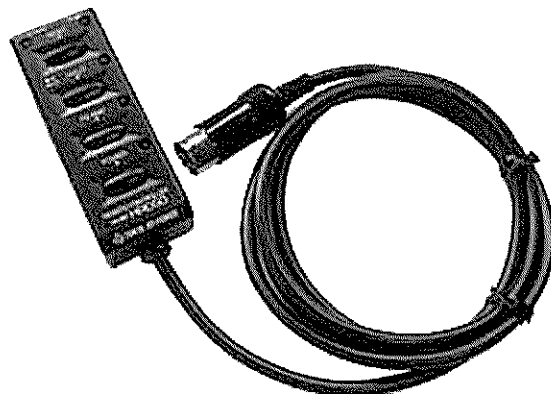
6. Optional Parts

■ Remote Controller. HRC-60

When mobile operation, you can remotely turn on and off DC power and RX Preamp from the driver's seat.

(Cable length: 1.5 meter with 8 pin DIN plug, or 5 feet)

(Remote head: 30W x 20H x 80D mm)



- Mounting Bracket with Cooling Fan, HBK-300F
Cools the amp efficiently especially at high duty cycle operation.



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