



**USER MANUAL
SRXR SERIES
CONTINUOUS DUTY
UHF RF POWER AMPLIFIERS**

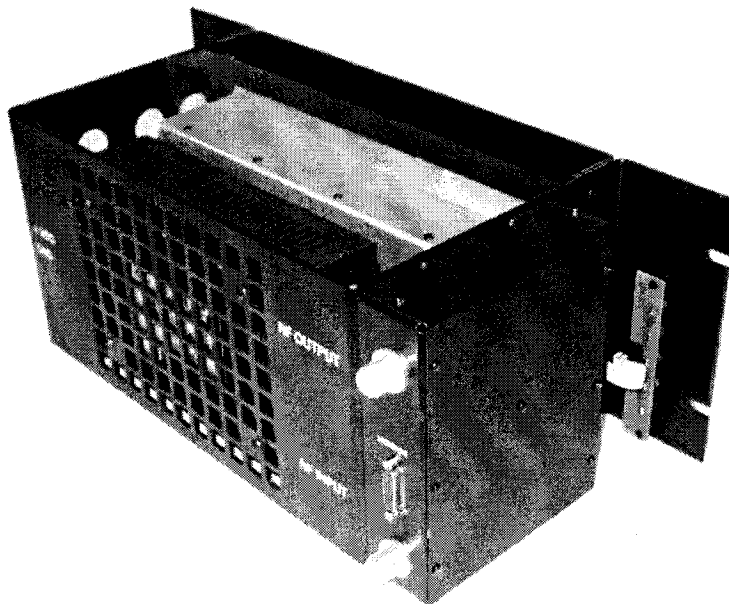
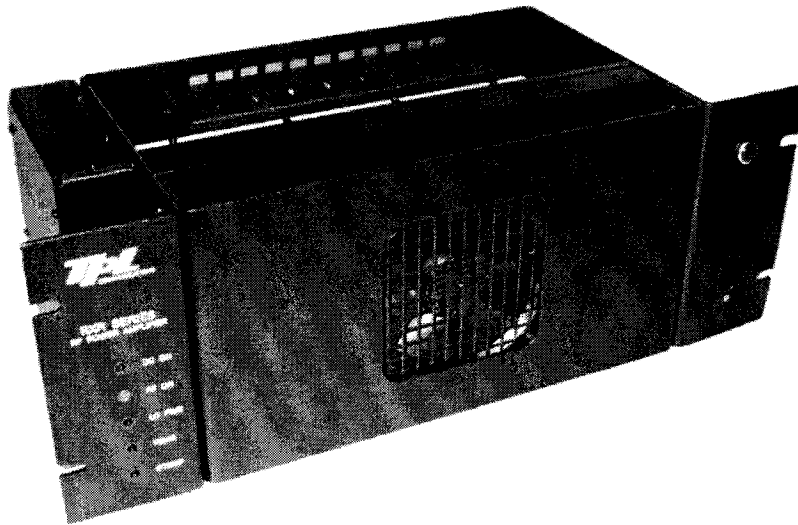
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PRODUCT DESCRIPTION

The **SRXR** series of **TPL** Power Amplifiers are intended for use in base station or repeater applications. They are all medium power units (100 watt range) and in various configurations will cover the frequency range extending from Low Band VHF to 960 MHz. An **SRXR** amplifier is a self-contained unit which is designed to be installed in a 19-inch rack. Four options are available, depending upon the customer's primary power and cooling requirements. The following illustrations depict basic configuration.



OPTIONS

TPL Communications' UHF Continuous Duty RF Power Amplifiers are available with several options: input, output, voltage, frequency ranges, and configurations, special logos, etc., when specified at the time of order. We work closely with you, our customer, to develop products that are in complete compliance with your needs and specifications.

PACKAGE OPTIONS:

- SRXRF:** Extruded aluminum heat sink with alarms, protections and cooling fan. 19"W x 7"H x 8"D
- SRXRF2:** Same as "SRXRF", but with two cooling fans
19"W x 7"H x 8"D
- SRXRFPS:** Same as "SRXRF," but with integrated power supply.
19"W x 7"H x 8"D
- SRXRF2PS:** Same as "SRXRFPS", but with two 13.8 VDC cooling fans.
19"W x 7"H x 8"D

SOLID STATE COR OPTION - SSR

A solid state carrier operated relay is available on some models if specified.

*Other variations and options are available; contact **TPL** for further information.

NOTE: All **TPL** standard **UHF** series amplifiers are factory-tuned to the frequency specified at the time of order and will operate within minimum ± 10 MHz of that frequency unless otherwise specified. Many models are available with lower input drive level. Contact manufacturer for details.

CAUTION!

Inspect the amplifier upon receipt for visible damage. If any is noticed, please call **TPL Communications** at **800 HI POWER** to request an **RMA** (Return Material Authorization) number. If purchased through a dealer or distributor, ask them to also follow this procedure for best results.

**EXPENSIVE COMPONENTS MAY BE DESTROYED IF THE AMPLIFIER IS
TURNED ON IN A DAMAGED CONDITION.**

GENERAL SPECIFICATIONS

CONTINUOUS DUTY UHF POWER AMPLIFIERS

FREQUENCY RANGE: 400 - 512 MHz

TABLE 1

| MODEL | POWER INPUT | POWER OUTPUT | DC CURRENT | SUPPLY VOLTAGE |
|-------------------|-------------|--------------|------------|----------------|
| PA6-1EE-SRXRF-PS | 50-250 mW | 100 W | 24 Amps. | 13.8 VDC |
| PA6-1AE-SRXRF-PS | 2-4 W | 100 W | 20 Amps. | 13.8 VDC |
| PA6-1AE3-SRXRF-PS | 4-8 W | 100 W | 20 Amps. | 13.8 VDC |
| PA6-1BE-SRXRF-PS | 8-15 W | 100 W | 16 Amps. | 13.8 VDC |
| PA6-1FE-SRXRF-PS | 15-30 W | 100 W | 16 Amps. | 13.8 VDC |

1. Power Supplies are available for all models as PS option.

OPERATING MODE:

FM / CW

OPERATING VOLTAGE:

110 VAC / 220 VAC 13.8 VDC option.

EIA DUTY CYCLE:

100% / Continuous

HARMONIC & SPURIOUS ATTENUATION:

Meets or exceeds FCC Certification requirements.

IN/OUT IMPEDANCE:

50 Ohms.

IN/OUT RF CONNECTORS:

Type "N"

RECEIVER PATH INSERTION LOSS:

1 dB maximum when the optional **Solid State Carrier Operated Relay (SSR)** is specified.

GENERAL SPECIFICATIONS
(continued)

CONFIGURATION:

Repeater configuration is standard and it is supplied without a **SSR**. Base station configuration is optional and it is supplied with **SSR**. The separate RX Port is optional.

CIRCUIT PROTECTION:

Provided by a circuit breaker with model-dependant current rating.

OPERATING TEMPERATURE RANGE:

-20° to +50° Celsius.

STORAGE TEMPERATURE:

-40° to +85° Celsius.

OPERATING HUMIDITY:

0% -85% RM (non-condensing)

STORAGE HUMIDITY:

0% -95% RH (non-condensing)

OPERATING PRECAUTIONS

- CAUTION:** This amplifier produces RF voltages that can cause painful and dangerous RF burns. Use caution! Connect and disconnect all RF connections with the DC power and drive power off.
- DRIVE POWER:** RF power transistors, although quite rugged in most respects, are easily damaged by overdrive. Be careful not to overdrive this amplifier, even for an instant. Higher than rated drive power may destroy the transistors and **VOID ANY WARRANTY.**
- TERMINATIONS:** The efficiency of this amplifier will degrade if it is operated into anything but a 50 Ohm load. Lowered efficiency may mean any, or all, of the following: lower power output, increased current drain, higher operating temperature, lower efficiency and reduced lifetime.

INSTALLATION INSTRUCTIONS

This unit is designed for mounting in a standard 19" rack. When picking a location in the rack, consideration must be given to RF power output cable lengths, as well as cooling considerations.

Mount the unit where dust and other debris are not likely to clog the cooling fans. Avoid mounting the amplifier directly above hot pieces of equipment that could artificially raise the amplifier temperature.

Connect the radio transmitter to the "**RF INPUT**" connector on the amplifier with a 50 Ohm cable and type "**N**" plug. Connect the antenna to the "**RF OUTPUT**" connector on the amplifier with 50 Ohm coaxial cable and a type "**N**" plug.

Plug the AC line cord into the system AC power receptacle. If powered by a user-supplied **13.8 VDC** source, connection must be made with **#10 AWG** (or heavier) wiring.

For safety, ensure that the rack and all equipment connected to the amplifier have proper AC grounds. Do not rely on coaxial cable shielding. Assure the installation has proper lightning protection (e.g. in line coaxial protectors manufactured by PolyPhaser Corporation or equivalent).

SYSTEM INDICATORS

| Indicator | Function/Characteristic |
|-------------|--|
| DC ON | Steady Green LED indicating that DC Voltage is being applied to the amplifier. |
| RF ON | Steady yellow LED indicating that adequate RF drive power is being applied to the amplifier. |
| LOPWR | Flashing red alarm LED when RF output power is below an internally preset level. |
| SWR | Flashing red alarm LED when output load SWR exceeds the internally preset level. |
| OTEMP | Flashing red alarm LED when amplifier heat sink temperature is above an internally preset level. |

OPERATOR ADJUSTMENTS

The operator adjustments are accessible on the back between the RF connectors. These are 10-turn potentiometers P1 through P5 and switch SW1. Their functions are as follows:

| Ref. Des. | Function / Adjustment |
|------------------|---|
| P1 | Determines the threshold for a valid input RF power level. |
| P2 | Low RF power output threshold set to determine the alarm level for the front panel indicator. |
| P3 | Sets the RF output power level under RF feedback leveling control. |
| P4 | SWR threshold set to determine the alarm level for the front panel indicator. |
| P5 | Sets the RF output power level under regulated DC control. |
| SW1 | Determines the method of RF output power control. The TEST position provides regulated DC control. The OPER position provides RF feedback leveling control. |

A basic understanding of RF principals is necessary before making any adjustments to the unit. This includes the knowledge of the relationship of forward and reflected power relative to SWR, etc. Adjustment also requires the familiarity and use of test equipment. If in doubt, consult your distributor, dealer or the manufacturer about changes.

REMOTE MONITORING

The monitored functions are described in other sections. These same functions, some of which are displayed by LED's on the front panel, are available at the **REMOTE MONITOR DB-15** connector on the rear panel. The outputs are as follows:

Monitor Signals

| Function | Pin | Signal Definition | Source | Mode | Voltage | Current |
|----------|-----|---------------------------|---------------------------|------------|--------------------------------|-------------|
| VCC | 1 | +5 Volts | Reference | Supply | +5 VDC | 20 mA Max. |
| +8 VDC | 2 | +8 Volts | Regulator | Supply | +8 VDC | 20 mA Max. |
| LPA | 3 | Low Power Alarm | Open Collector | Active Low | 30 V Max. | 20 mA Max. |
| OTMP | 4 | Over Temperature Alarm | Open Collector | Active Low | 30 V Max. | 20 mA Max. |
| SWR | 5 | Standing Wave Ratio Alarm | Open Collector | Active Low | 30 V Max. | 20 mA Max. |
| VFM | 6 | Forward Power Monitor | Buffer | Analog | 5 V under ALC | 1 mA Max. |
| VRM | 7 | Reflected Power Monitor | Buffer | Analog | 8 V max, alarm on ≥ 1.8 V | 1 mA Max. |
| GND | 8 | Ground | Chassis and signal ground | ----- | ----- | ----- |
| TEMP | 11 | Temperature | Buffer | Analog | 1 V @ 25°C | 1 mA Max. |
| PTT | 12 | Push-To-Talk | Input | Active Low | 5 V Max. | 0.5 mA Max. |
| RFON | 15 | RF Input On | Open Collector | Active Low | 30 V Max. | 20 mA Max. |

WARRANTY

TPL COMMUNICATIONS has tested and found this unit to function properly and to operate within the parameters of its stated specifications.

TPL COMMUNICATIONS warrants that this product is free from defects in material and workmanship. If found to be defective within two (2) years from the date of purchase the factory at its discretion, will either repair or replace the unit at no cost provided the unit is delivered by the owner to the factory intact. Warranty does not apply to any product which has been subjected to misuse, neglect, accident, improper installation or used in violation of instructions furnished by us, nor does it extend to units which have been repaired or altered outside our service department, nor where the serial number has been removed, defaced or changed.

SERVICE

For service on this amplifier, contact:

TPL COMMUNICATIONS

Customer Service Department

PHONE (323) 256-3000

PHONE: (800) HI POWER - (800) 447-6937

FAX (323) 254-3210

E-Mail: [**sales@tplcom.com**](mailto:sales@tplcom.com)

For information on other **TPL** products

visit our website at

[**www.tplcom.com**](http://www.tplcom.com)