

# TWTA Replacement

## SOLID STATE AMPLIFIER

- ▶ High MTBF
- ▶ No Maintenance Required
- ▶ Easy installation
- ▶ Energy Efficient
- ▶ High Channel Loading Capacity
- ▶ Cost Effective

Elisra's solid state Traveling Wave Tube Amplifier retrofit Family is an ideal, cost-effective solution for replacing TWTAs with solid state modern technologies.

Available in various frequency bands, these are complete fit form and functionalist replacements installable within an hour.

### Applications

Terrestrial microwave links have been used for many years as a cost-effective to physical telephone lines, providing a reliable efficient and versatile medium. Many of these links contain traveling wave tube amplifiers (TWTAs) at their transmitter end.

These amplifiers age at a very high rate and require and frequent adjustments and replacement.

This high maintenance item can be eliminated by replacing the old tubes with solid state amplifiers, which have inherently higher MTBF, can eliminate this high maintenance item and stability. Other benefits are lower current consumption and dramatically reduced maintenance costs. Installation is very simple and fast, and does not require any modification of the existing infrastructure.

Solid state amplifiers are directly competitive in initial price with TWT amplifiers.

Taking in account the long-term savings, the retrofit is very cost efficient.

### Product Description

Elisra offers a complete range of solid state power amplifiers and retrofit accessory kits to replace



TWTAs and their associated power supplies, in terrestrial point-to-point microwave transmitters.

Units with up to 50 watts output power are available at various frequency bands, from 1 to 18 GHz. They are complete form and fit replacements as they fit into the existing racks, thus preserving the customer's investments.

Solid state GaAs FET technology carries many advantages over tubes much higher (about 10 times) MTBF, longer shelf time, lower DC voltage supply, lower cooling requirements and no warm-up time. All these significantly reduce cost and increase life cycle. They maintain uniform output power along their life span and require no periodical alignments. This results in a quieter system with increased availability and higher channel loading capacity.

Elisra's units are compatible with various modulation

types. FM, OPSK, BPSK, PM, 160AM 64QAM.

The unit's internal and external DC converters can operate from primary voltage determined by the user from a wide range of options +24V -24V, -48V, or a - 18 to -72VDC source.

The amplifiers are protected against reverse polarity and power supply failure by means of a parallel diode and serial fuse.

They have a thermostat-based, built-in automatic shut down mechanism as protection from burn-out due to accidental overheating.

Additionally, the amplifiers are protected against any input/output infinite VSWR.

Retrofit amplifiers are also available with an input attenuator capable of accepting any RF power level between -10 and + 10dBm. This feature permits installation without the need for any adjustment at any of the previous stages.

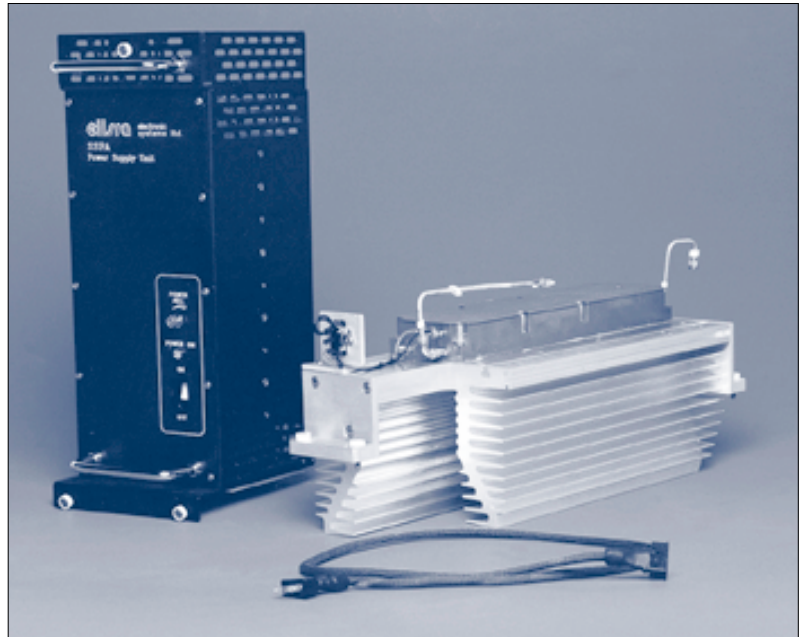
### Complementary Products

Elisra's Power Booster and Microwave links Repeater complement the product line for telephone and radio/TV microwave links.

### Retrofit Products

The following are some of the radio models which can be retrofitted by Elisra's amplifiers.

Manufacturer	Product
Siemens	CTR 147, CTR148, CTR 106, RM 1800-TV4000FM1800-TV6000, FM 2700-TV6700, FM 960-TV7500, DRS-140-11200, DRS-140-13000 DRS-140-15000
Philips	SR600
SEL	775C, 775D, FM180, DRS-140-6700, DRS-140-11200
STC	3.7-4.2 GHz
GES/Marconi	GEC 10/55 R680
NEC	TR-6G 1800-GA,A.B,TR-6GV-2A,3A
AT&T	OR6/135
Collins/Alcatel	MDR2306



### TWTAs SELECTION REPLACEMENT\*

The following are some of the Traveling Wave Tubes models which can be retrofitted by Elisra's amplifiers.

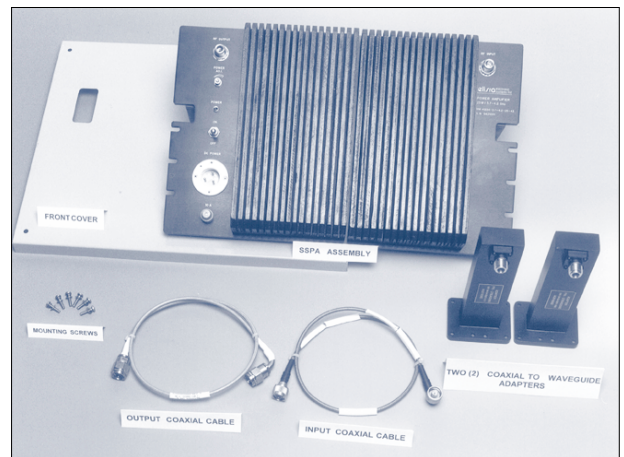
Manufacturer	Product
Siemens	RW 2 RW 2P.RW 3 RW 21 RW 42, RW 48, RW 48M, RW 80, RW 81, RW 85, RW 88, RW 89, RW 90, RW 189, RW 248,RW 289, RW 290, RW 1125, RW 1136, RW 2135, RW 2896
AEG	YH 1110,YH 1207,YH 1195
STC	W5MC175, STCW3MC125

\*Partial listing

# REPLACEMENT KITS

## HIGHLIGHTS

- ▶ Fit, form and function replacement
- ▶ High reliability
- ▶ Easy installation



Model Number Typical Specifications	Frequency (GHz)	Power Output at 1 dB GCP (dBm)	Nominal Gain (dB)	Power Output (dBm)
MW4127-1.7-2.1-20-40	1.7-2.1	42.5	40	43.5
MW4127-1.9-2.3-20-40	1.9-2.3	42.5	40	43.5
MW4127-2.2-2.5-20-40	2.2-2.5	42.5	40	43.5
MW4127-2.4-2.7-20-40	2.4-2.7	42.5	40	43.5
MW4127-3.4-3.8-20-40	3.4-2.7	42.5	40	43.5
MW4127-3.5-3.9-20-40	3.5-3.9	42.5	40	43.5
MW4127-3.7-4.2-20-40	3.7-4.2	42.5	40	43.5
MW4127-3.7-4.2-20-40	3.7-4.2	42.5	40	43.5
MW4127-4.4-5.0-20-40	4.4-5.0	42.5	40	43.5
MW4127-5.9-6.5-20-40	5.9-6.5	42.5	40	43.5
MW4127-6.5-6.9-20-40	6.5-6.9	42.5	40	43.5
MW4127-6.8-7.2-20-40	6.8-7.2	42.5	40	43.5
MW4127-7.1-7.7-20-40	7.1-7.7	42.5	40	43.5
MW4127-7.7-8.5-20-40	7.7-8.5	42.5	40	43.5
MW4127-10.7-11.7-10-40	10.7-11.7	39.5	40	40.5
MW4127-12.0-12.5-10-40	12.0-12.5	39.5	40	40.5
MW4127-12.7-13.3-10-40	12.7-13.3	39.5	40	40.5
MW4127-14.0-14.3-10-40	14.0-14.5	39.5	40	40.5
MW4127-14.4-15.3-10-40	14.4-15.3	39.5	40	40.5