

## R630 Series High-Powered Amplifiers

The R630 series is a complete line of standard high power TWT Amplifiers ideally suited for EMI/EMC testing, RF component burn-in and power amplification.

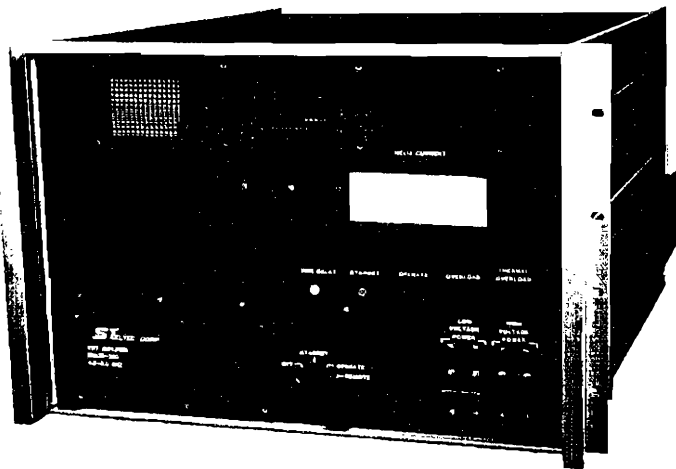
Each unit is self contained and designed to fit in a standard 19 inch rack cabinet. Chassis slides are provided to facilitate installation. Other useful features include modular construction of its solid state power supply (eliminating tuning and periodic maintenance); easily removable top and bottom covers for access to either the power supply/control modules or the RF/TWT section and an integral forced air cooling system that draws fresh air through the front panel and exhausts the heated air via a rear duct.

Built-in protection features include an automatic preset TWT heater time delay, helix current overload, TWT thermal overload, surge current limiting, arc protection and prime power input circuit breakers. High quality MIL-spec components are used throughout the design at low stress levels to insure the maximum MTFB possible.

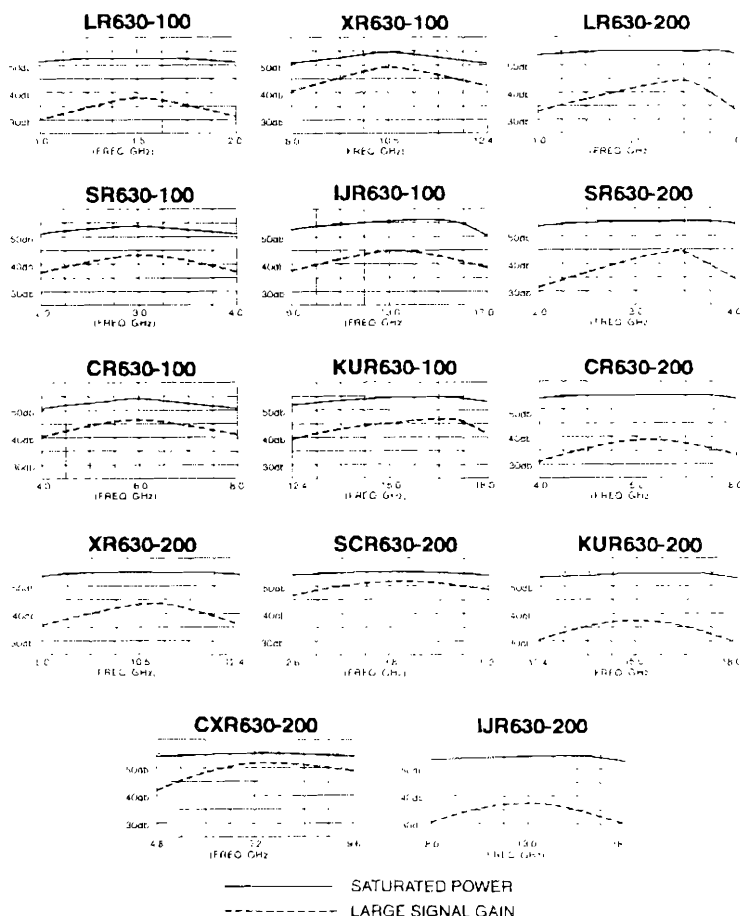
R630 amplifiers are available in 100, 200 and 250 over standard octave bandwidths in single thread packages and high power in selected narrow bands and phase combined packages. All are easily modified to meet custom designs and systems.

### Features

- Operational/maintenance manual
- Standard octave and multi-octave band coverage
- Rack mounting/chassis slides standard
- Remote control standard
- Total TWT protection
- TWT helix current meter
- Solid state, modular power supply
- Chassis cover interlock system
- Internal forced air cooling
- 115V or 230VAC prime power standard
- All connectors are on rear panel



### 630 Series Typical Power Gain Curves



## Options

Refer to option section on page 48.

## Electrical and RF Specifications

Duty Cycle .....	CW
VSWR (input/output) .....	2.5:1 nominal
Spurious modulation .....	-40dBc
Prime power input .....	Selectable, 115V or 230VAC ±10%, 50/60 Hz, single phase
Power consumption	
R630-100/200 series .....	2200 Watts max.
R630-250 series .....	2600 Watts max.

## Mechanical Specifications

Dimensions .....	12.25H x 26"D x 19"W
Weight .....	200 lbs. nominal
Cooling .....	Integral forced air
RF Connectors	
L through C Bands .....	Type N female
CX Band .....	RF input: SMA female RF output: WRD 475 waveguide
X Band .....	RF input: SMA female RF output: WR 90/UG 39U
Ku Band .....	RF input: SMA female RF output: WR 62/UG 419U
I/J Band .....	RF input: SMA female RF output: WRD 750 waveguide

## Environmental Specifications

Altitude .....	To 10,000 ft.
Temperature Range (Ambient)	
Operating .....	0° to +50°C
Storage .....	-20° to +85°C
Humidity, non-condensing .....	To 95% relative

## Controls

- Prime Power L.V. Circuit Breaker
- Prime Power H.V. Circuit Breaker
- Mode Select Switch
  - Off
  - Standby
  - Operate
  - Remote
- Chassis Cover Interlocks

## Monitors

- TWT Helix Current Meter

## Status Indicators

- Time Delay
- Standby
- Operate
- Helix Overload
- TWT Thermal Overload
- VSWR Overload (Optional)

## Available Models

Model	Frequency (GHz)	Output Power (min)	Gain (min)
LR630-100	1.0-2.0	100W	30dB
SR630-100	2.0-4.0	100W	35dB
CR630-100	4.0-8.0	100W	35dB
XR630-100	8.0-12.4	100W	35dB
KuR630-100	12.4-18.0	100W	35dB
IJR630-100	8.0-18.0	100W	35dB
LR630-200	1.0-2.0	200W	30dB
SR630-200	2.0-4.0	200W	35dB
SCR630-200	2.6-5.2	200W	40dB
CR630-200	4.0-8.0	200W	35dB
CXR630-200	4.8-9.6	200W	35dB
XR630-200	8.0-12.4	200W	35dB
KuR630-200	12.4-18.0	200W	30dB
IJR630-200	8.0-18.0	200W	30dB
LSR630-250	1.0-2.8	250W	35dB
SCR630-250	2.8-4.8	250W	35dB
CR630-250	4.8-8.0	250W	40dB
XR630-250	8.0-12.4	250W	40dB

# Standard TWTA Options

ST Keltec offers the most comprehensive selection of standard options available to meet the requirements of the most exacting customer. These options are referenced by option codes and should be defined as such when placing an order. Note that several options require a customer specification (such as RF filters). Selection of the options, as required, allows you to customize a standard TWTA to meet your specific design or equipment requirement. The option table below indicates singular availability. Not all possible combinations of options are available in any one TWTA. Please confirm availability with factory.

## Option Guide

Code Designators     Standard     Optional     Not Available

		R610	R630
Front panel connectors	A	○	○
SMA Connectors	B1	○	-
N Connectors	B2	○	-
K connectors for RF output	B4	-	-
K connectors for RF input	B5	-	-
3 Phase Prime Power	C1	-	○
230 VAC Prime Power via isolation transformer	C2	○	-
115 VAC, 10, 400Hz Prime Power	D	○	○
1EEE-488 Interface	E	○	○
RS-232 Interface	E1	○	○
RS-422 Interface	E2	○	-
Low Pass RF output filter	F	○	○
RF Gain Adjust	G	○	○
Input Isolator	H	○	○
Output Isolator	I	○	-
SSA for rated output with OdBm input	J1	○	○
SSA for rated output with -10dBm input	J2	○	○
Helix Current Meter	K	▲	▲
-30dB sample port	M1	○	○
-10dB sample port	M2	○	○
-50dB sample port	M4	-	○
-40dB sample port	M5	-	-
1/2 rack adapter	N1	○	-
Pin Diode Switch	P	○	○
Remote Control	R	○	▲
Chassis Slides	S	○	▲
VSWR Detect	V	-	○
VSWR Detect and Output Sample	V1	-	○
VSWR Detect and Output Sample for Pulse Amplifiers	W	-	-

## Applicable TWTA Series

R610 series

R630 series

NOTE: See option guide for specific TWTA series and available options.

Option Code	Description/Specification	Unit Series
A	Selects standard RF connectors relocated to the unit's front panel. <i>NOTE: Consult factory for units with waveguide RF output</i>	R610 R630
B1	Selects alternate type "SMA" female RF connectors on bands L, S, C, X. <i>NOTE: Connector location is on the unit rear panel unless addition option "A" is selected</i>	R610
B2	Selects alternate type "N" female precision RF connectors on bands Ku, IJ. <i>NOTE: Connector location is on the unit rear panel unless addition option "A" is selected</i>	R610
C1	Selects 115/208VAC, ±10%, 3 phase, 48-63HZ prime AC power input.	R630
C2	Selects 230VAC, ±10%, 48-63HZ prime power input (via isolation transformer).	R610
D	Selects 115VAC, ±10% single phase, 400 HZ prime power input.	R610 R630
E	Selects remote control of unit front panel controls and status indicators via the IEEE-488 standard buss. Device address is customer selectable.	R610 R630

<b>E1</b>	Selects remote control of unit front panel controls and status indicators via the RS-232 buss.	<b>R610</b> <b>R630</b>	<b>P</b>	Selects pin diode switch on the RF input internal to unit. SPECIFICATION: Isolation ..... 50dB minimum Drive ..... TTL compatible Speed ..... 25 NSEC, 10-90% NOTE: Selection of this option reduces the standard unit gain.	<b>R610</b> <b>R630</b>
<b>E2</b>	Selects remote control of unit front panel controls and status indicators via the RS-422 buss.	<b>R610</b> <b>R630</b>	<b>R</b>	Selects remote control of unit's front panel switches and status indicators. Provides remote control of unit on/off, standby and operate switches. Provides relay contact closures for power on, standby/operate, fault, remote/local control status indicators. NOTE: This option requires an external 24-28VDC power source capable of providing 100ma of current.	<b>R610</b>
<b>F</b>	Selects low pass RF output filter. NOTE: Requires customer specification, and unit RF output power is reduced.	<b>R610</b> <b>R630</b>	<b>S</b>	Selects chassis slides on 19" rack mount units.	<b>R610</b>
<b>G</b>	Selects RF gain adjust. This option provides 20dB gain adjust minimum of standard unit gain via a front panel mounted lockable turns counting dial. NOTE: Unit minimum gain is reduced.	<b>R610</b> <b>R630</b>	<b>V</b>	Selects VSWR detect and unit overload. This option provides VSWR detection RF components and P.S. internal overload circuitry/indicator that reverts the unit to the overload mode during excessive RF output VSWR. NOTE: Selection of this option reduces the minimum RF output power and gain of the unit.	<b>R630</b>
<b>H</b>	Selects RF input isolator internal to unit. Provides load matching of the unit RF input and reduces the unit RF input plus reduces the unit input VSWR to 1.5:1 maximum. NOTE: Selection of this option reduces the minimum gain of the unit.	<b>R610</b> <b>R630</b>	<b>V1</b>	Selects VSWR detect/overload and an RF output power monitor. This option provides VSWR detection RF components and P.S. internal overload circuitry/indicator that reverts the unit to the overload mode during excessive RF output VSWR. Also included with this option is a -30dB RF output monitor, located on the rear panel of the unit. RF output monitor connector is type "TNC" female. NOTE: Selection of this option reduces the minimum RF output power and gain of the unit.	<b>R630</b>
<b>I</b>	Selects RF output isolator internal. Option provides load matching on unit RF output as well as TWT protection during excessive VSWR. Reduces output VSWR to 1.5:1 maximum. NOTE: Selection of this option reduces the minimum RF power output and gain of the unit.	<b>R610</b>			
<b>J1</b>	Selects SSA for unit high gain. This option provides unit rated RF output power with a minimum RF input of 0dBm. The SSA will improve the noise figures of the TWTA.	<b>R610</b> <b>R630</b>			
<b>J2</b>	Selects SSA for unit high gain. This option provides unit rated RF output power with a minimum RF input of -10dBm. The SSA will improve the noise figure of the TWTA.	<b>R610</b> <b>R630</b>			
<b>M1</b>	Selects -30dB output power monitor. Sample port is available via the unit rear panel. RF connector is per the standard band connectors unless alternate connector option is specified.	<b>R610</b> <b>R630</b>			
<b>M2</b>	Input power monitor at -10dBc. Sample port is available via the unit front panel. RF connector is per the standard band connectors unless alternate connector option is specified.	<b>R610</b> <b>R630</b>			
<b>M4</b>	Selects -50dB output power monitor. Sample port is available via the unit rear panel with a type TNC or SMA female connector.	<b>R630</b>			
<b>M5</b>	Selects -40dB output power monitor. Sample port is available with a type TNC, SMA, or K female connector.	<b>R630</b>			

